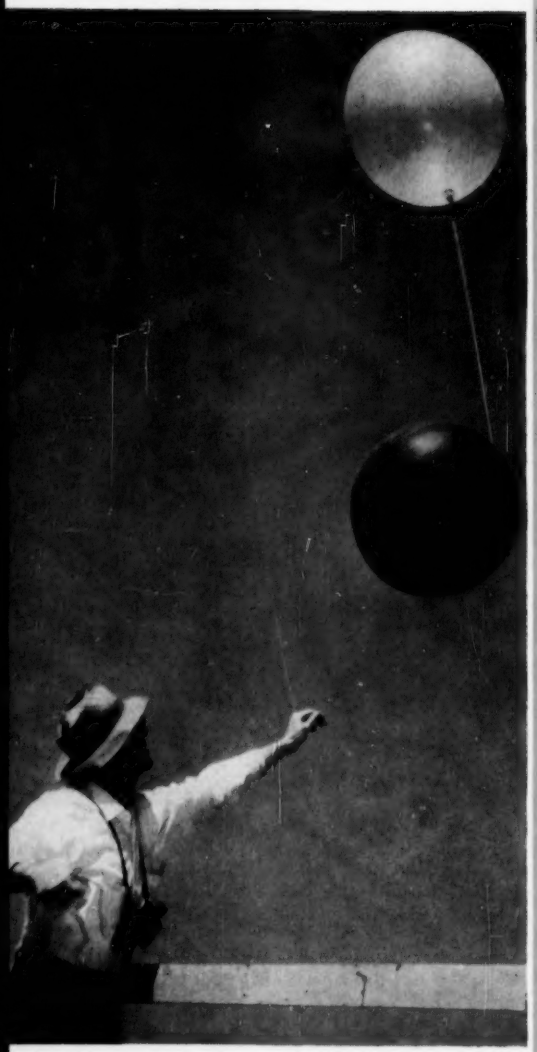
Chemical Week

January 8, 1955 Price 35 cents



Air pollution research soars as states get set to toughen laws . . . . . p. 24

Mounting construction costs spur interest in these tried, dollar-saving tactics . . . . . p. 38

Liquid detergents outpace experts' predictions, hit $50-million stride . . . . . p. 44

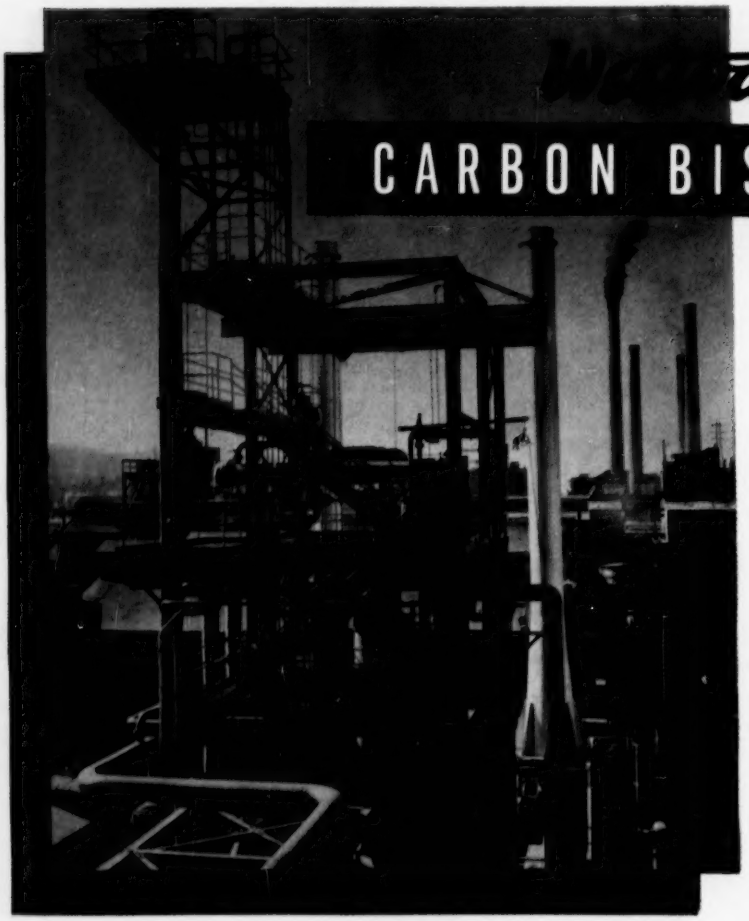
Adipic acid's prospects broaden; nylon tops; adipates, polyesters move up as consumers . . . p. 55

Nitrogen dioxide research may recast thermal fixation's future . . . . . p. 62

E P POWER
UNIVERSITY MICROFILMS IN
313 N 1ST ST
ANN ARBOR MICH

A McGRAW-HILL PUB

Orchids to our engineers for our new Process, Plant and Product



Westvaco CARBON BISULFIDE

Seldom does a process go from laboratory bench to a continuous-unit production plant and immediately produce as high quality a product as WESTVACO Carbon Bisulfide.

Not only did our engineers give us America's largest continuous process Carbon Bisulfide plant, but also a product that runs 99.99% pure on a dry basis, comparable to what is usually considered C.P. or reagent grade. Precise automatic control assures uniform high-quality, water-white Carbon Bisulfide for rayon, cellophane, cellulose sponges, rubber and rubber accelerators, fumigants, pesticides, industrial solvents, etc.

This is one more example of the many forward steps being made by Westvaco Chlor-Alkali Division in expanding facilities . . . widening and improving product lines. If you use Carbon Bisulfide, we can serve you promptly and economically. Why not get samples and prices?

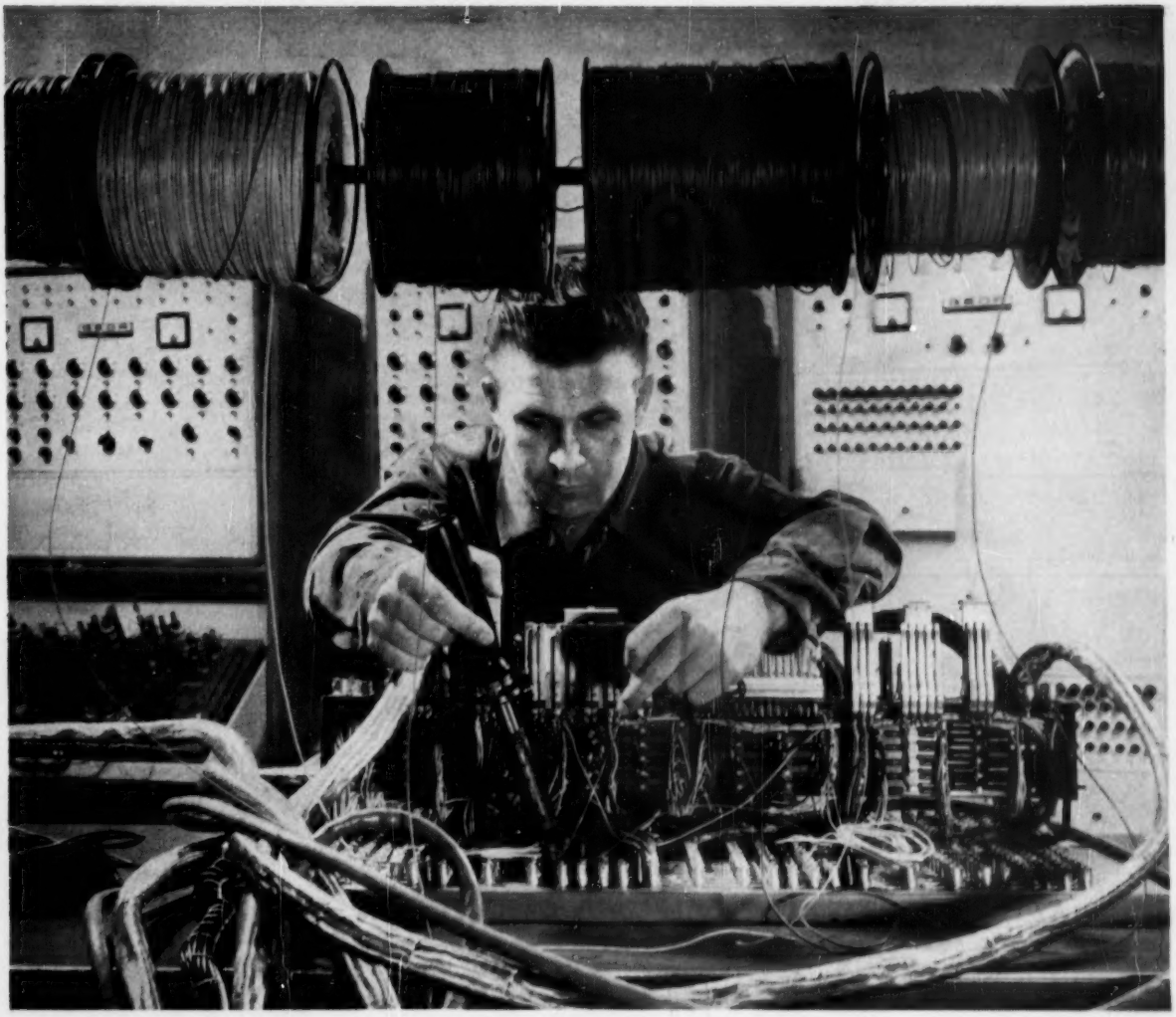
fmc Westvaco CHEMICALS

Westvaco Chlor-Alkali Division

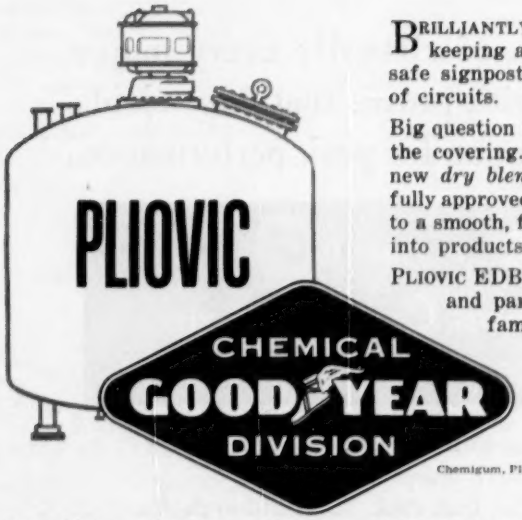
FOOD MACHINERY AND CHEMICAL CORPORATION

General Offices · 161 East 42nd Street, New York 17

CHARLOTTE, N. C. • CHICAGO, ILL. • DENVER, COLO. • PHILADELPHIA, PA. • ST. LOUIS, MO.



How to keep an electronic mind thinking straight



BRILLIANTLY jacketed wires are the answer to the problem of keeping an analog computer thinking straight. They serve as safe signposts that guide technicians quickly through the maze of circuits.

Big question in building these signposts is what material to use in the covering. One well-qualified answer is PLIOVIC EDB90V – a new *dry blending*, polyvinyl chloride resin. PLIOVIC EDB90V is fully approved by Underwriters' Laboratories. It dry-blends readily to a smooth, free-flowing mix that is easily extruded or calendered into products of excellent physical properties.

PLIOVIC EDB90V results from close control over molecular weight and particle size, shape and distribution. It is one of the family of PLIOVIC resins specifically designed to give better products at lower cost. How can they help you? For details, write:

Goodyear, Chemical Division, Department A-9417, Akron 16, Ohio.

Chemigum, Pliobond, Pliolite, Plio-Tuf, Pliovic—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

CHEMIGUM · PLIOBOND · PLIOLITE · PLIO-TUF · PLIOVIC · WING-CHEMICALS · The Finest Chemicals for Industry

PEAK PERFORMANCE

The production experience of virtually every major chlor-alkali producer in America proves that dependable GLC ANODES may be relied upon for peak performance.

ELECTRODE GLC® DIVISION

Great Lakes Carbon Corporation

GRAPHITE ANODES, ELECTRODES, MOLDS and SPECIALTIES

ADMINISTRATIVE OFFICE: 18 East 48th Street, New York 17, N.Y.

PLANTS: Niagara Falls, N.Y., Morganton, N.C.

OTHER OFFICES: Niagara Falls, N.Y., Oak Park, Ill., Pittsburgh, Pa.

SALES AGENTS IN OTHER COUNTRIES: Great Northern Carbon & Chemical Co., Ltd., Montreal, Canada
Overseas Carbon & Coke Company, Inc., Geneva, Switzerland; Great Eastern Carbon & Chemical Co., Inc., Chiyoda-Ku, Tokyo, Japan

Chemical Week

Volume 76 **January 8, 1955** Number 2

PUBLISHER.....Wallace F. Traendly
EDITORIAL DIRECTOR..... Sidney D. Kirkpatrick
EDITOR.....W. Alec Jordan
MANAGING EDITOR.....Howard C. E. Johnson

Features Editor: Donald P. Burke

DEPARTMENT EDITORS
Business & Industry: Jane H. Cutaia
Distribution: Raymond H. Layer
Markets: Anthony J. Piombino
Production: D. P. Burke
Research: Ralph R. Schulz
Specialties: J. R. Warren

Special Projects: Homer Starr

Illustration, Format: Donald R. Thayer

Copy: William Mullinack

ASSISTANT EDITORS
Business & Industry: Vincent L. Marsilia
Distribution: John M. Winton
Markets: Richard Ringheim
Production: Kenneth Wilsey, Michael L. Yaffee
Research: Joseph F. Kalina
Specialties: Robert C. Hosford

REGIONAL EDITORS
Midwest: Frank C. Byrnes, Chicago
Southwest: James A. Lee, Houston
West Coast: Elliot Schrier, San Francisco

EDITORIAL ASSISTANTS
Charles Joslin
Kay Sebiry

NATIONAL NEWS

Economics: Dexter M. Keezer, *Director;* Douglas Greenwald, Robert P. Ulin

Atlanta: William Kearns
Cleveland: Robert E. Cochran
Detroit: James C. Jones
Los Angeles: John Shinn
San Francisco: Margaret Ralston
Washington: George B. Bryant, Jr.

Correspondents in 73 principal cities

WORLD NEWS

John Wilhelm, *Editor*
London: Edward W. S. Hull
Paris: John O. Coppock
Bonn: Gerald W. Schroder
São Paulo: Lionel Holmes
Mexico City: John H. Kearney
Tokyo: Dan Kurzman

Correspondents in 44 capitals and principal cities

ADVERTISING STAFF

Sales Director: B. E. Sawyer
Sales Manager: R. S. Muller
Business Manager: A. J. Mangold
Promotion Manager: Fred E. Lesner
Market Service Mgr.: Adolph I. Losick
Sales Reps.: See Advertisers Index

Chemical Week (including Chemical Specialties and Chemical Industries) is published by McGraw-Hill Publishing Company, Inc. James H. McGraw (1860-1948), founder. Publication Office: 1309 Noble St., Philadelphia 23, Pa.

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions to Chemical Week are solicited from management men in the chemical process industries. Position and company connection must be indicated on subscription order. Address all subscription communications to Chemical Week Subscription Service, 1309 Noble St., Philadelphia 23, Pa., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Single copies 35¢ except Annual Buyer's Guide issue, priced at $2.50. Subscription rates—United States and Possessions $5.00 a year; $8.00 for two years; $10.00 for three years. Canada $6.00 for a year; $10.00 for two years; $12.00 for three years. Other Western Hemisphere Countries $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries $25.00 a year; $40.00 for two years; $50.00 for three years. Entered as second class matter December 20, 1951, at the Post Office at Philadelphia 23, Pa., under the act of March 3, 1879. Printed in U.S.A. Copyright 1955 by McGraw-Hill Publishing Co., Inc.—All rights reserved.

4 OPINION
Prescription prices trouble drugmakers

11 NEWSLETTER

15 BUSINESS & INDUSTRY
Executives size up first-quarter business prospects
16 Congressional outlook on chemical legislation
17 Why three remaining U. S.-owned rubber plants weren't sold
20 How trade with Iron Curtain countries is going
22 Profit-sharing plans gaining momentum
24 New state pollution laws coming
26 Impact of switch to nonbreakable records on chemical sales
30 Penicillin lawsuit poses questions on Patent Office policies

38 PRODUCTION
How you can save on new construction
41 New mathematical charts race against slide rules, calculators
42 Three new processes of bleaching pulp

44 SPECIALTIES
Rugged competition for the $50-million liquid detergent market
46 Vigorous promotion brings new life to Butcher Polish Co.

51 MARKET LETTER

55 MARKETS
More adipic for more uses—that's the outlook

58 DISTRIBUTION
Fiber box makers bid for more chemical business
61 Port of Houston campaigns for more shipping trade

62 RESEARCH
Nitrogen dioxide's fertilizer potential
64 Full-scale refinery for research replaces pilot plant at Sharples Corp.

METHYLENE CHLORIDE TECHNICAL AND PAINT REMOVER GRADES

TRICRESYL PHOSPHATE

DIOCTYL PHTHALATE

DI-ISOOCTYL PHTHALATE

DIBUTYL PHTHALATE

BUTYL DECYL PHTHALATE

Manufactured by
KOLKER
CHEMICAL CORPORATION
600 Doremus Avenue, Newark 5, New Jersey
Telephone — Market 2-4085

OPINION . . . . . .

Rough Water Ahead for Drugs

"Public Opinion is stronger than the legislature . . ."

Charles Dudley Warner

The pharmaceutical industry is in trouble—and heading into a good deal more. It is being beset by public resentment and badgered by loud, compelling criticism. The charge: prices of drugs, particularly of prescription items, are exorbitant.

As yet, although drugmakers have not been unscathed by the blistering accusations that the public is being "gouged and fleeced," the main target has been the pharmacist. He is being categorized, in unvarnished terms, as an outright profiteer and exploiter of human ills. Moreover, some newspapers have baldly asserted that "The prescription dodge is an effective way to boost druggists' profits from the ordinary 50% to 200% or 300%."

Such accusations are, of course, denied by dispensing pharmacists. However, the majority of them are not facing up to the problem squarely. Most, when a customer complains that he is being overcharged, merely flinch and mumble a platitude or two. Few attempt to justify their charges by, for example, forthrightly outlining their fees or pricing policy. Many are inclined to resort to the easy "don't-blame-me" answer: "These new drugs are expensive."

Clearly, whenever the druggist so dodges the issue, he involves the pharmaceutical makers. It is they who are indicted in the public mind; it is they who are nominated, by default as it were, as the "profiteering culprits."

The situation as it obtains today—in terms of the number and vehemence of customer complaints—is serious enough. And, unfortunately, there is little prospect that it will improve. Indeed, the odds are that it will worsen. This is why: Several organizations have surveyed the nation's pharmacists to appraise their prescription pricing systems. Over 30% of the pharmacists, in the opinion of the surveyors, charge prices that are near or below break-even point. (Example: $2.75 for 12 capsules that wholesale at $1.32; the "proper" price, it is contended, should be between $3.75 and $4.)

Thus it is that many druggists are now being urged to boost prices. (But also to use a logical, equitable pricing method and to shun the what-the-traffic-will-bear philosophy.) Higher prices will, perforce, incite and invite more public ire. Significantly, it will foment a more distressing public relations problem for pharmaceutical makers.

A problem of this moment does not lend itself, of course, to any simple, swift solution. Nor is there any single course that can be taken to forestall what threatens. Nonetheless, there are, in our opinion, several essentials that warrant the immediate attention of pharmaceutical executives.

One obvious necessity is that pharmaceutical makers must strive to get the facts to the public. Some are already supplying pharmacists with leaflets to enclose in prescription packages; others are providing drugstores with window displays that promote the "efficacy value" of drugs. But there is much more that can, and must be done. The industry has a great deal that it can say for itself—honestly and proudly. It can cite many of the dramatic advances it has made, its contributions to the nation's—and the world's—health; it can recount the costs of its research, the steady drop in prices of the newer pharmaceuticals; it can publicize the truly curative worth of, for instance, the antibiotics, which are, after all, a far cry from the old cherry syrup and balsam concoctions.

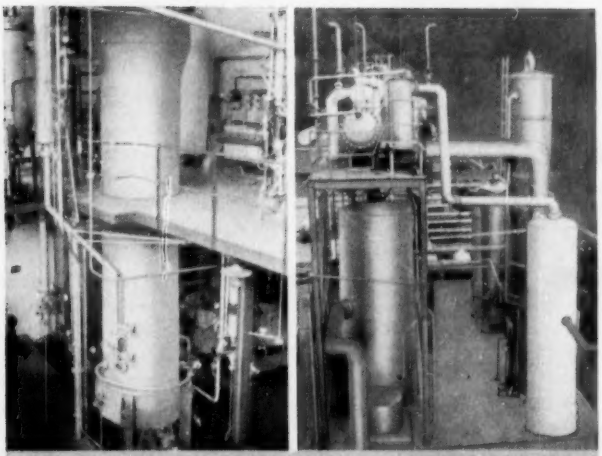
It can stress the fact that many illnesses (e.g., mastoiditis) are now cleared up by medication rather than by costly and painful surgery. In such a frame of reference, drugs are "bargains." It is the plain job of the industry to "sell" the public on the "value"—rather than "cost"—concept.

Just as important, perhaps, is "educating" the pharmacist. It devolves upon drugmakers to counsel him on pricing; it devolves on them to buttress

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N. Y.

product **quality**
process **simplicity...**



Synthesis and recycle sections of the Havag Urea Plant, Ems, Switzerland.

these are reasons why the **Inventa** process for

UREA

is gaining increased recognition...

More and more, attention is being turned to Vulcan Engineering and the Inventa Urea Process. Now the vast potentialities of urea production—for fertilizers, cattle feeds, plastics, pharmaceuticals—can be fully realized. For here is a process which produces *only* top-quality product, suitable for all these applications—and with minimum plant investment.

- The Inventa Urea Process has been thoroughly tested and *proven* in nearly six years' tonnage production.
- A basically *simple* process, it attains high per-pass conversion of ammonia to urea—*without the use of diluents.*
- Commercial operation of the Inventa Urea Process has *demonstrated* a remarkably low level of plant maintenance. This stems from a combination of special materials of construction and operating techniques.
- This all adds up to low initial outlay and long-term operating economy—*plus* the year-around saleability of an all-purpose product!

Engineering and procurement by Vulcan for two major plants utilizing this process are currently in progress. When your company considers urea production let Vulcan Engineering furnish you with more details concerning this valuable process.

VULCAN ENGINEERING DIVISION

The VULCAN COPPER & SUPPLY CO., *General Offices and Plant,* CINCINNATI 2, OHIO

NEW YORK BOSTON HOUSTON SAN FRANCISCO

VICKERS VULCAN PROCESS ENGINEERING CO., LTD., MONTREAL, CANADA

DIVISIONS OF THE VULCAN COPPER & SUPPLY CO.:

VULCAN ENGINEERING DIVISION • VULCAN MANUFACTURING DIVISION • VULCAN CONSTRUCTION DIVISION • VULCAN INDUSTRIAL SUPPLY DIVISION

THE EIMCO BURWELL

Plate and Frame Filter users will appreciate this new Eimco filter because it does EASILY so many of the jobs that were long tedious tasks on the conventional Plate and Frame Filter.

Take for instance the long job of opening and closing — now, with the Eimco, it's a matter of push-button control with instant response, takes no time at all.

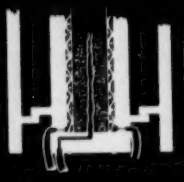
Cleaning, which may take hours on the conventional machine, requires no down time on an Eimco, simply rotate the cleaned frame into position and start filtering again.

You get several times the washing efficiency with an Eimco over conventional plate and frame filters. The split cake which is evenly formed over the entire surface of each plate is washed by introducing the wash water through the feed port. Thus both surfaces of filter media are utilized for the outward passage of wash liquor, instead of only one surface as on conventional plate and frame filter. Washing efficiency is, therefore, at least doubled.

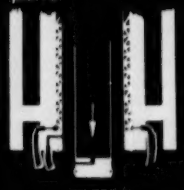
One hundred square feet of filter area on an Eimco Burwell filter is equal to 5, 10 or 20 times that amount of area on a conventional plate and frame filter.

Write for complete information.

Plates open to allow frame to enter and position for filtering.



Plates closed on frame — in this position the feed, wash and blow portion of the cycle are completed.



Plates open to allow filled frame to move down and out.

THE EIMCO CORPORATION

Salt Lake City, Utah—U.S.A. ✱ Export Offices: Eimco Bldg., 52 South St., New York City

New York, N. Y. Chicago, Ill. San Francisco, Calif. El Paso, Texas Birmingham, Ala. Duluth, Minn. Kellogg, Ida. London, Eng. Paris, France Milan, Italy

him with facts. And, it is the drugmakers' responsibility to convince the pharmacist that a vague defense of his fees is by no means comparable to a solid justification of charges.

Both these methods of public education can be effective—at least to some degree. However, this basic situation remains: the opinion the public holds of the drug industry will still depend very largely on the retail druggist. On his markup, how well he handles his customers, on his actions, the public relations of the entire pharmaceutical industry will pivot.

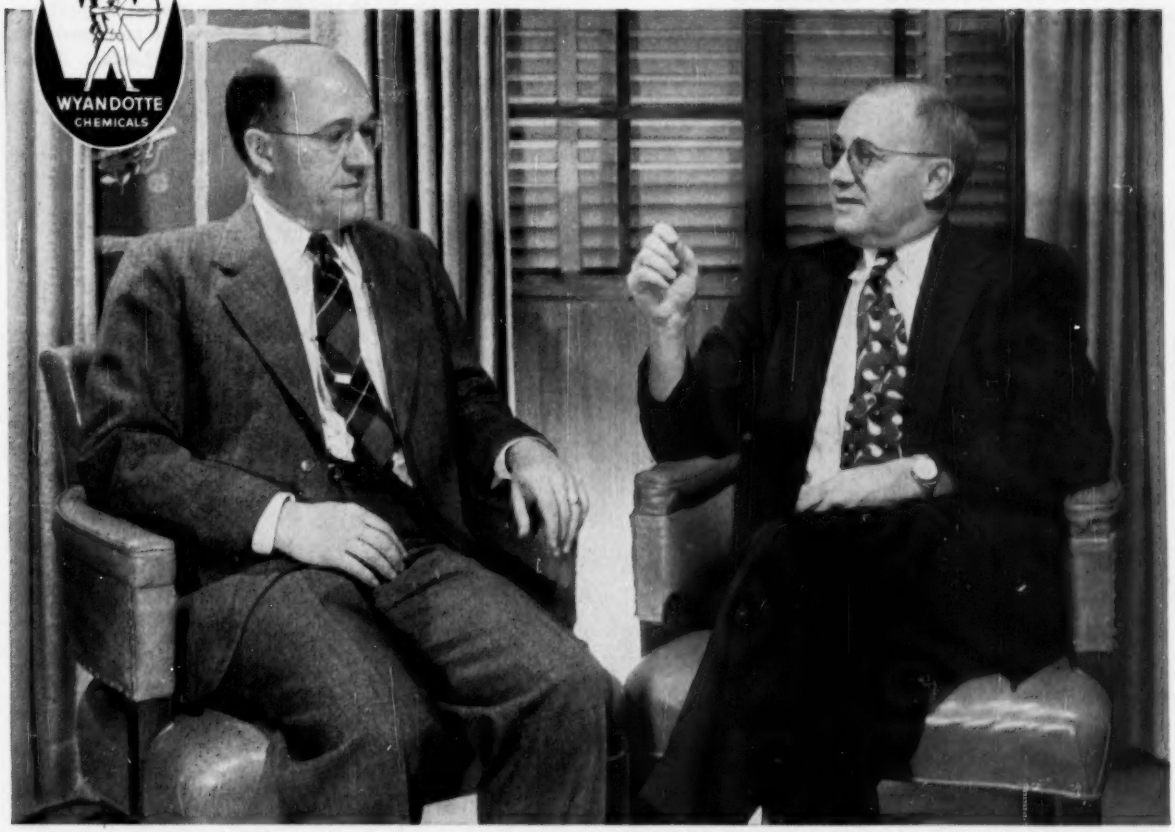
Perhaps it is, therefore, that pharmaceutical companies might well ponder a question now, which, we venture, they will have to resolve within the next few years: Is the present practice of prescription dispensing an anachronism? It might be.

Not too many years ago, pharmacists compounded most of their own elixirs; today, some 90% of the prescriptions they dispense are preformulated, tradenamed items. (And the public knows this; Latin doesn't disguise Amphojel.) The time may be approaching when it is hardly sensible for a pharmacist merely to take pills out of one box, put them in another, affix a label—and set his own price.

Possibly pharmaceutical makers will have to assume the complete responsibility for pricing their products. (Some "suggest" prices now but no druggist need adhere to any such schedule.) Ethicals might be packaged in average-dosage-size containers, tradenamed and price-labeled. A prescription would then be, in essence, a requisition; the druggist would be custodian and seller of the medications. (We have no doubt that, initially, such a procedure would raise a storm of protest from pharmacists who would assert that their professional stature was being outraged; over the long term, however, we suspect that a mellower view would prevail and that pharmacists might welcome being relieved of one nettlesome aspect of their business.)

Under such a system the drug industry would have at least some control over its public relations. It might be better able to dissipate misunderstanding and stem the tide of public ill-will. That's of vital importance. For if any industry, no matter how great its accomplishments or how laudable its objectives, is misunderstood or subject

Dependable Source for Chemical Raw Materials



Elmer Luckow (right), chief soap chemist for the Allen B. Wrisley Co., discusses benefits of Pluronics F68 with William Lieb

"Our 12-year search ended when we learned about Pluronic F68"

– William Lieb, chief cosmetic chemist, Allen B. Wrisley Co., Chicago

"For 12 years we searched for a nonionic, low-foaming, nonirritating surface active agent in solid form," says Chief Cosmetic Chemist William Lieb, Allen B. Wrisley Company, Chicago, makers of fine soaps and toiletries since 1862.

"We tested literally hundreds of products. None of them filled the bill. Then the Wyandotte representative suggested Pluronic F68. We found it fitted our needs exactly. There is no way of measuring in dollars the value of a development like this.

"We use other Wyandotte products, too. As a matter of fact, we have been buyers of Wyandotte Soda Ash and Caustic since World War I. Deliveries have always been prompt; quality excellent. Wyandotte is big enough to handle our largest orders and give us expert technical assistance, yet small enough to provide personalized service and attention. We are well satisfied."

How about your business? Can you benefit by using some of Wyandotte's many products? Can you profit through Wyandotte's far-reaching developmental program and cooperative technical service? Contact our nearest district office, or write Wyandotte . . . we're glad to be of service. Samples of Pluronic* F68 are available upon request. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*

*REG. U.S. PAT. OFF.

Wyandotte CHEMICALS

HEADQUARTERS FOR ALKALIES

Soda Ash • Caustic Soda • Bicarbonate of Soda • Chlorine
Calcium Carbonate • Calcium Chloride • Glycols • Synthetic Detergents • Agricultural Insecticides • Soil Conditioners
Other Organic and Inorganic Chemicals

How Bemis makes GOOD multiwall bags for you

A. R. Ewing, director of the Bemis Paper Control Laboratory, has twenty-nine years' experience in this field. He is shown operating the laboratory's electro-hydraulic tensile tester, one of the many precision devices that go to make the Bemis laboratory probably the most complete in the country devoted entirely to bag papers.

Use good paper... test it... prove it!

Bemis sets high standards for the various papers used in making Bemis Multiwall Bags. And we are able to maintain these standards because we buy our paper from a variety of top sources. These multiple sources are the key . . . if one should fall below par, the others are there to supply our needs. We don't have to take less than the best.

Bemis BAG COMPANY

General Offices—St. Louis 2, Mo.

Sales Offices in Principal Cities

to public distrust, the consequence is inevitable: burdensome and restrictive legislation.—**W. Alec Jordan, Editor**

Pacific Ally

TO THE EDITOR: Under the heading of "All Set for a Tussle" (*Nov. 11, '54, p. 14*), you state Washington's reasoning is that Japan is the United States' major ally in the Pacific.

Can this be substantiated politically, culturally or commercially? What about Australia and the vast industrial p tential of that continent, which is of the equivalent area of the U.S. Also, it should not be forgotten that Canada has a Pacific interest and neither of these nations has shown the slightest inclination toward any action contrary to U.S. interests . . .

LLOYD G. BROWN
Norwalk, Conn.

Washington's view: Japan is the hinge of our whole Far Eastern defense barrier. It is the defensive shield for Korea, Formosa, the Philippines, and is the largest industrial complex in the Far East.

It, as a trading nation, must align itself either with the free world or with the Communist world. With no prospect of self-sufficiency it cannot hope for neutrality. If Japan is forced to choose economic alignment with Red China the whole of Free Asia from Korea to Pakistan—with a population of 600 million—would suffer a military, economic and psychological shock and could topple into Communist hands.—ED.

DATES AHEAD...

Chemical Market Research Assn., joint meeting with CCDA, subject: chemicals in foods and feeds, Edgewater Beach hotel, Chicago, Jan. 20-21.

Plant Maintenance and Engineering Show, International Amphitheatre, Chicago, Jan. 24-27.

Chlorine Institute, annual meeting, Biltmore hotel, New York, Jan. 26.

Assn. of American Soap and Glycerine Producers, annual convention, Waldorf-Astoria hotel, New York, Jan. 26-28.

Chemical Institute of Canada, protective coatings division conference, Royal York hotel, Toronto, Feb. 24; Ritz Carlton hotel, Montreal, Feb. 25.

Drug, Chemical and Allied Trades section of the N.Y. Board of Trade, annual dinner, Waldorf-Astoria hotel, New York, March 3.

New concept in tank cars

acf BUILT **DURADOME**

FLUED DOME TANK CAR

Advanced engineering and production know-how make this truly modern tank car available at *no extra cost*.

Top center section, showing flued dome base

- A million-dollar press actually *flues* the dome base out of the heavy center section—providing greater strength and a smooth interior for easier cleaning . . . better application of lining.
- Superior *pressure-type* tank construction (complete ring sections) means heavier steel *all* the way around for greater durability.
- *Standardized* all-welded underframe provides flexibility of use with tanks of all standard types and capacities . . . more economical maintenance.
- *All-welded* insulation jacket (when insulation is required). Streamlined . . . more weatherproof . . . easier to keep clean . . . needs less maintenance.

The DURADOME car is available for lease or sale through . . .

SHIPPERS CAR LINE — S H P X

SHIPPERS' CAR LINE CORPORATION

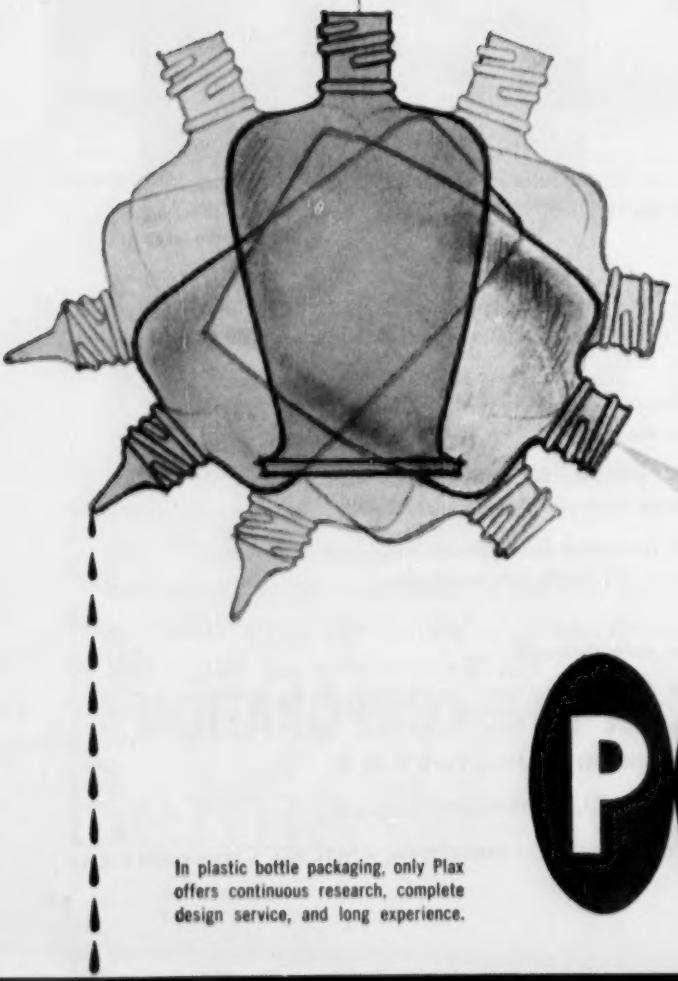
30 Church Street, New York 7, N. Y.

A subsidiary of acf INDUSTRIES Incorporated

CHICAGO, ILL. • HOUSTON, TEX. • SAN FRANCISCO, CAL. • MILTON, PA. • EAST ST. LOUIS, ILL. • SMACKOVER, ARK. • TULSA, OKLA. • NORTH KANSAS CITY, MO.

There's a PLAX Package with the ideal DISPENSING method for your product

You specify the action . . . fine, medium or coarse . . . spray . . . drop-by-drop . . . pressure or controlled pouring . . . direct application. In a Plax package, your product is dispensed exactly as it should be for maximum use convenience. More than 50 stock fitments to choose from. PLUS rainbow colors . . . lighter shipping weights that can save you hundreds of thousands of dollars . . . and the custom or stock shape that gives your product stand-out eye appeal. For packaging that makes your product easier to use, consult Plax.



PLAX CORPORATION

P. O. Box 1019, HARTFORD, CONNECTICUT

IN CANADA: Plax Canada, Ltd., Montreal and Toronto

PLAX

In plastic bottle packaging, only Plax offers continuous research, complete design service, and long experience.

NEWSLETTER

New ammunition was handed to the Patent Office last week for getting the money it needs to cut down on a backlog of patent applications *(CW, July 3, '54, p. 58)*. A committee of outside experts, headed by Vannevar Bush, has urged faster reclassification of patents and application of electronic machines to de-bottleneck patent searching.

•

Apparently overlooking all the recent pressure to nudge it out of the paint manufacturing business, the U.S. Navy is readying operations at Norfolk, Va., and Mare Island, Calif. Bids are out to supply 2500 tons of resins for the two plants—enough to keep them going for a full year. The Dept. of Defense is getting into the act, too, is currently preparing a directive justifying the Navy's continued operation of paint-producing facilities.

•

Merger reports are rampant again this week—this time concerning the possible affiliation of National Lead Co. and Bunker Hill & Sullivan Mining Co. One reason for the speculation: the depressed price of lead, which has industry observers thinking that Bunker Hill might be available. Last year, National Lead's net profit almost equaled Bunker Hill's total sales—$30 million. Bunker Hill has extensive lead, zinc and silver mines in Idaho, might have cobalt deposits on its property.

•

Formation of a new company—the offspring of the Texas Co. and New Jersey Zinc—is also in the offing if current exploration activities in the Colorado Plateau pan out. A joint scouting expedition will be conducted by the two companies, and should uranium be discovered in sufficient quantity to justify mining operations, a separate company will be formed.

•

More on the touchy potash "dumping" investigation being conducted by the Treasury Dept.—kicked off by charges against East German producers—*(CW, Dec. 18, '54, p. 13)*. According to department officials (trying to root out all cases of dumping in the U.S.), sales of muriate of potash from Spain are being made at fair value. A handful of other countries are, however, still under scrutiny. Treasury's verdict on who's guilty is due within the next several weeks.

•

Reshuffling is taking place in the Commerce Dept., too—over the list of commodities U.S. firms can export to Hong Kong without applying for special licenses. Removed from the critical list: certain pyroxylin-coated or impregnated fabrics, fluorescent paints, and fountain pen parts containing iridium or ruthenium. The department has also decided on its first-quarter export quota for selenium, setting it at 6000 lbs.—the same as last year's final-quarter quota.

•

Perhaps the first of this year's plants *(CW, Jan.1, p. 47)*, to cross the finish line is Stauffer Chemical's Crystex sulfur plant at Monongahela, Pa. Completed just last week, the $800,000 unit converts ordinary sulfur

by a continuous process into an insoluble, polymeric allotropic form. The product is now turned out by two plants—at Chauncey, N.Y., and Richmond, Calif.—and the site for the new facilities was chosen for its proximity to the rubber industry, a major consumer.

•

Shortly to be completed is United Gas Pipe Line Co.'s plant near Runge, Tex., to recover liquid hydrocarbons from natural gas. Drawing gas from 26 fields, the installation will process 100 million cu. ft./day, recover about 70,000 gal./day of liquid hydrocarbons—natural gasoline and liquefied petroleum gases.

•

Reminiscent of the Texas City disaster is a just-settled lawsuit arising from another 1947 explosion—aboard the *S. S. Mahia*, carrying 399 drums of sodium chlorate, which exploded and sank in Melbourne Harbor, killing 11 seamen.

Owners of the vessel sued Electric Reduction Co. of Canada Ltd. and Electric Reduction Sales Co. Ltd. for $1,414,000—later reduced to an even $1 million—for damages, but the suit has now been dismissed by the Superior Court in Montreal.

The plaintiff argued that the drums were not suitably watertight; the defendants countered that sodium chlorate is not listed as an explosive, that the containers were accepted by the plaintiff, and that longshoremen unloading the cargo had not been properly warned and supervised.

•

Despite all that research has accomplished, there's still a lot to be done. That's the gist of a publication issued this week by the Dept. of Commerce that lists 109 problems confronting the armed services. It was compiled by the National Inventors Council with the aid of the three military services.

Among the chemical panaceas sought: high-index transparent plastics, mica substitute, oxygen mask material, high temperature-resistant tires, a method of measuring odors.

•

Problems of a less concrete sort occupied the 7000 scientists gathered in Berkeley, Calif., last week for the first west-of-the-Rockies national meeting of the American Assn. for the Advancement of Science.

Hotel Claremont was the magnet that drew most industry men, for there met the Industrial Science Section—to hear about problems in basic research, with emphasis on the roles played by government, industry and universities.

The consensus: there isn't enough basic research being done, and the main reason is that there isn't enough money being spent on it. A secondary problem is education of potential scientists. Both problems could be solved, says National Science Foundation's Paul Klopsteg, by providing individuals and corporations with proper tax incentives that would encourage giving to educational institutions.

Fruitful fields for basic research, according to University of California's Glenn Seaborg: synthetic inorganic chemistry; ruthenium, rhodium and palladium; analytical chemistry; the liquid state; basic colloid chemistry; thermodynamics of the actinides; x-ray absorption; kinetic theory; and radio-astronomy.

Much of it sounds far afield from industry, but it's today's research that blueprints tomorrow's plants.

. . . The Editors

WATER-SOLUBLE AMINE PRODUCTS WORTH TRYING

Many new opportunities for product improvements are offered by Hercules' group of water-soluble rosin amine derivatives. Most important of these is RADA (Rosin Amine D Acetate), a water-soluble acetate salt.

Dispersible in hydrocarbons and alcohol, RADA is a cationic surface active agent that adsorbs strongly on cellulosic and siliceous materials. Readily available in either solution or paste form, this acetic acid salt of Hercules' Rosin Amine D suggests a wide scope of applications.

The water-soluble Polyrad® group, ethylene oxide members of the Hercules' rosin amine family, has also indicated its usefulness in various products. Collectively, RADA and the water-soluble Polyrad chemicals exhibit properties of value in bactericides, fungicides, corrosion inhibitors, as well as anti-stripping agents for cutback asphalt, wetting agents in textile processing, flotation agents, and emulsifiers—to mention just a few.

To learn more about the versatile Rosin Amine D family, write us for further information on the oil-soluble, water-soluble, and acid-soluble types.

Naval Stores Department

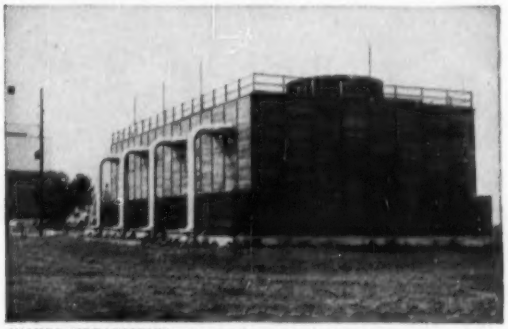
HERCULES POWDER COMPANY
INCORPORATED

992 Market Street, Wilmington 99, Delaware

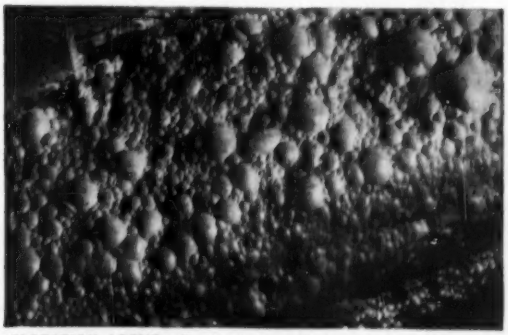
HERCULES
ROSIN AMINE
DERIVATIVES

ANTI-STRIPPING AGENT—Hercules RADA added to cut-back asphalts improves adhesion to wet siliceous aggregate and helps prevent subsequent stripping by water.

WETTING AGENT—As an aid in textile processing, the water-soluble amine products have shown their usefulness as wetting agents.

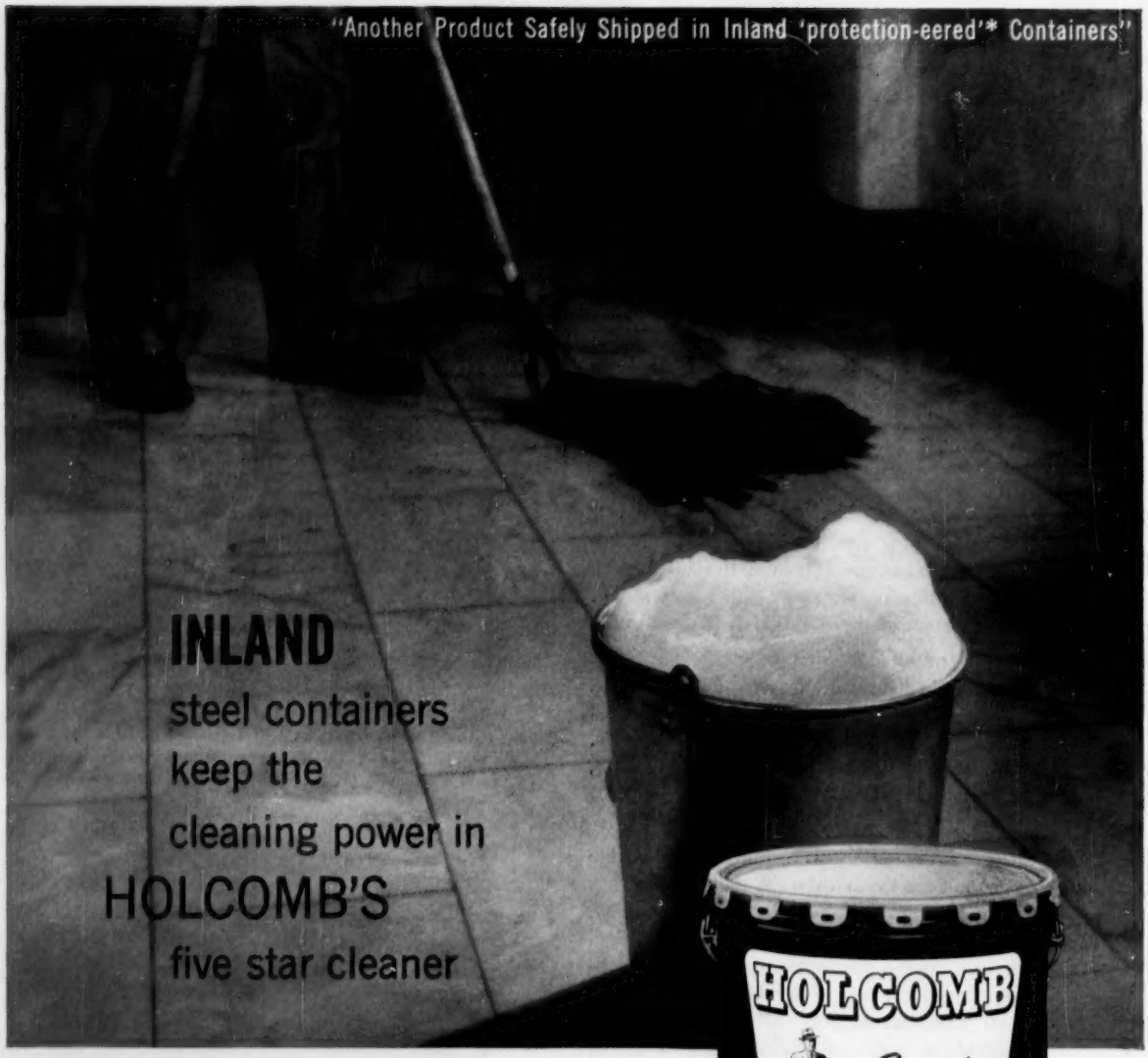


WATER TREATMENT—Several amine derivatives are useful in control of bacteria and fungi in cooling towers and in secondary recovery operations.



FLOTATION AGENT—Rosin Amine D Acetate has been successfully employed in the flotation treatment of certain ores and minerals.

NA54-3



The secret of FIVE STAR CLEANER, the all-purpose liquid synthetic cleaner made by J. I. Holcomb Mfg. Company, Inc., Indianapolis, producers of a full line of scientific cleaning materials, is its powerful detergent with sustained sudsing action.

When Holcomb first developed FIVE STAR CLEANER, they wanted to find a container that would retain all of the product's outstanding characteristics during shipment and storage.

Holcomb threw the problem to Inland Steel Container's packaging chemists. After a period of intensive research and field testing, a special liner was developed which would deliver FIVE STAR CLEANER to Holcomb's customers just as it was produced at the factory—sparkling clear, ready to do a fast and thorough cleaning job.

Today FIVE STAR CLEANER is shipped to commercial and industrial users throughout the country, exclusively in Inland "protection-eered" containers.

Have you a packaging problem Inland can help you solve?

INLAND

*the right container with the right lining for your product

Write Mr. Robert Boecher, Room 234-A

INLAND STEEL CONTAINER COMPANY

Division of Inland Steel Company

6532 South Menard Avenue • Chicago 38, Illinois

Plants: Chicago • Jersey City • New Orleans

January 8, 1955 • Volume 76 • Number 2

Chemical Week

BUSINESS & INDUSTRY . . .

Here's How Opinion Is Unfolding

"The squeeze on small manufacturing companies in '55 will cause more aggressive marketing—but it's a healthy state of affairs."

"Increased strength of automobile and steel industries should bring about a buoyant demand for a host of chemicals."

"It's the opening of a new era of possibilities . . ."

"Southern chemical makers are united in their belief that this is the year they'll come into their own."

"With business picking up, we're sure to see a rush of new companies formed."

"Stock market prices are already reflecting the public's awareness that 1955 will be a year of major progress."

Success Begats Confidence

It's an old axiom that nothing succeeds like success. And that's precisely the state in which chemical management finds itself this week. With business activity moving steadily upward, and virtually all economic indicators promising the trend will continue far into the year, executives can see no clouds to dim their view.

Take the position of most small chemical manufacturers, for example. On the one hand they're predicting a definite squeeze on small chemical companies this year. Large firms, they claim, will continue and even accelerate a trend to make greater use of by-products in manufacturing staple chemicals in competition with small companies. And since the small companies depend on outside raw materials, this means increased competitive pressure.

"But," points out one small chemical company's president, "this very squeeze is the basis of our strength. We have already been forced into a more aggressive marketing position, while it appears some of the giants of our industry are simply coasting."

South Exudes Confidence: Southern chemical companies echo this type of optimism too. Most firms predict that more business concerns will establish plants and sales offices in the South during 1955 than in 1954—which in itself was a banner year. Part of the expansion will be caused by the increased emphasis (on the part of many Southern communities) to attract outside industry into the area, but part, chemical men say, is a "natural dividend of the tremendous developmental effort south of Mason-Dixon line."

In Baltimore, for example, chemical men say they've noticed the upswing in business especially during the past 90 days; in Baton Rouge, they're expecting a flood of new small firms to spring up this year "in a number of previously nonchemical towns."

North Says the Same: North and Northeastern chemical company executives are equally sure that 1955 will be a banner year. "Currently," states one company vice-president "demand for chemicals is running at all time records for this time of the year. And this time it looks like the upswing will continue." Reason: many producers tried price-cutting in 1954 to meet the rigors of a buyer's market. But by midyear it became apparent that a price war wouldn't solve the problem—since it simply led to a reallocation of existing demand. "Now," he maintains, "companies realize the futility of such price-cutting, are relying on more healthful means to maintain pace (e.g., development of new low-cost production methods, fresh attacks on shipping costs, etc.)."

From the West comes a flat prediction that before the close of 1955, chemical companies will be recording new highs—in both sales and profits.

It adds up a solid vote of confidence by management in the year ahead.

Trendsetter?

Though the entire project is still almost as nebulous as a weather report Monsanto Chemical Co. has confirmed its association with the newly formed Yankee Atomic Electric Co., in a venture to bring nuclear power into New England.

Monsanto—with big chemical investments in the area—has held a series of discussions with William Webster, president of the four-month-old utility company. Next step: sessions with the Atomic Energy Commission to work out details of the proposed atomic electric plant. Already, however, both Monsanto and Yankee have started selecting a reactor design and are deep in planning details.

Slated to invest in the project also are 11 public utility firms (now supplying 90% of the electric output of a six-state area). But at the moment their participation in the plan is purely prospective.

Long active in the nuclear power field, Monsanto will contribute engineering know-how to the joint venture but, if things shape up as Yankee Electric hopes, Monsanto's "alliance" will continue through actual plant operation.

These Are the Leading Issues the 84th Congress Will Tackle This Week

TAXES

The Administration's plan to reduce (to 38%) taxes on corporate income earned abroad.

Extension (past April 1) of 52% corporation taxes, some excise tax levies.

LABOR

Raising minimum wage levels from 75¢ to 85-90¢ an hour, reducing exemptions.

Possible revision of Taft-Hartley law.

FOREIGN TRADE

Three-year extension of Reciprocal Trade Act, plus authority to reduce tariffs by 15%.

Approval (by both House and Senate) of GATT.

Revision of customs simplification laws.

RUBBER DISPOSAL

Disposal of remaining synthetic rubber plants, or disapproval of entire package deal.

NATURAL GAS

Exemption of natural gas gatherers from Federal Power Commission regulation.

POLLUTION

Fast tax write-offs for new pollution abatement equipment.

Giving federal agencies more money for abatement research.

FOOD AND DRUGS

Better regulation of intentional food additives—prior to marketing.

Increase in appropriations to Food & Drug Administration.

Patents.

Increase in fees charged by Patent Office.

Change in 5-year compulsory licensing provision of Atomic Energy Act.

ALIEN PROPERTY

Measure to allow sale of General Aniline & Film Corp. before end of litigation concerning it.

Dirksen bill to return seized assets to German interests.

On the Hill, Counterchecks to Action

There's little doubt that the eyes and ears of chemical management will be tuned to Capitol Hill this week as a basket of new bills come up for consideration. Any new session of Congress is always important to industry, but this session has particular significance to chemical companies because of the sweeping provisions its various measures propose (*see table*).

Legislative action in the immediate future, however, is apt to be obscured by headlines. The Democrats will threaten to investigate whole chains of Republican "misdeeds and missteps," and there won't be any other shocking surprises. Reason: in the whole docket of legislative proposals, there are too many checks and balances.

First of all, the program of Eisenhower's "progressive moderates" will be handled by a Congress whose leaders are "moderate liberals." This doesn't foreshadow much of a shift to the left. Further, as the session progresses, informal coalition between conservatives of both parties is apt to gather strength, will dominate policies more and more.

Too, it's the committees in Congress that write legislation. And House and Senate committees normally look at matters quite differently. On taxes, for example, it doesn't really matter what the middle-of-the-road House group does. It will be the Senate Committee (headed by fiscal-conservative Harry Byrd) that swings the whip. His stress on balancing the budget will mean that chemical companies would do well to forget about the corporate tax drop (from 52% to 47%) now scheduled to take place on April 1.

On tariffs, it's the other way around. Despite the presence of such high-tariff Democrats as Delaware's Allen Frear on the committee, it will probably approve most of the "free trade" measures advocated by the White House. And even though the House group is considered more conservative, it probably won't go far enough to satisfy many chemical industry protectionists. Therefore, the main attempt to block trade liberalization measures will be made through the House Rules Committee—the "traffic cop" that determines *when* a bill comes up for full-dress debate.

On labor legislation, rubber disposal, pollution laws, and even food and drug measures, the picture's the same. One committee will countercheck another. Alien property and natural gas issues are sure to incite heated debate. That means little drastic action in the immediate future, little chance of much more than a series of countercheking moves until late spring.

Chary on Chestnuts

Not reaching rashly to yank others' chestnuts out of the fire is the National Labor Relations Board. In an important test case involving the International Chemical Workers Union (AFL), the board has decided to let AFL and CIO thrash out by themselves any problems arising under the AFL-CIO "no raiding" agreement.

The issue came to a head when ICWU Local 437 petitioned for a representation election at the Sheller Mfg. Corp. plant in Keokuk, Ia. Local 437 is trying to displace the United Rubber Workers (CIO) as bargaining agent at that plant—an outright violation of the no-raid pact that was signed last summer by both ICWU and URW.

But NLRB is ignoring that agreement, is ordering that the election be held later this month—despite a request by ICWU that the board turn down the petition of Local 437.

In ordering the election, a three-man NLRB majority said the current contract between Sheller and URW is not a bar to a new election. Reason: that contract now has run for more than two years—the normal contract period in the industry—and can now be challenged if at least 30% of the employees in the bargaining unit petition for a change in unions.

ICWU even revoked the local's charter in an attempt to block the raid, but Local 437 was determined to go ahead, in or out of the international union. If the local wins the election, it'll be a slap for the no-raid agreement. And from here on out, AFL and CIO will know that NLRB won't enforce the pact for them.

Leashed Know-How

Starting next week, the U.S. government will have a leash on certain technical information to keep that data from straying into Iron Curtain countries. Included: facts about various chemical processes, apparatus.

The Commerce Dept. is doing this by tightening up its export controls. For the past six years, there's been a voluntary program for this purpose; now, in addition to the voluntary program. Commerce is putting some 53 categories of technical information under a "mandatory" regulation. The new rule —effective Jan. 15—makes it illegal to export that information without an export license, even to affiliated companies in friendly countries. It's assumed, however, that licenses will be granted readily in most cases.

What Commerce is most concerned about: "advanced developments, technology and know-how, prototypes and special installations"—items in which U.S. industry is believed to have a significant lead over manufacturers in other nations.

The restriction applies only to blueprints, specifications and similar technical literature on the 53 items. Chemicals and chemical equipment included:

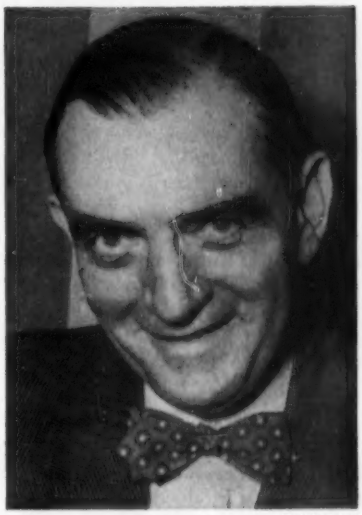
Blending agents of petroleum origin, melting and refining furnaces for production of titanium metal, hydrogenation equipment designed to operate at pressures of 360 psi. or more, toluene of petroleum origin, ethyl benzene, n-methylaniline, trifluorochloroethylene (also its polymers and their manufacturers, such as Kel-F), siloxanes, polyvinylbutyral, silicone diffusion pump oils, synthetic hydraulic fluids, silicone grease compounds, synthetic lubricants, isopropyl ether, nonyl sebacates, octyl sebacates and jet perforators.

Bridge-Building Effort

Out of an attempt to bridge the up-to-now unbridgeable gulf between those who believe food additives should be licensed and those who feel that notification of the governmental agency is enough may emerge the outlines of forthcoming legislation in that field.

Industry and government men with differing views on the need for new laws to control use of chemical food additives will have several chances to come up with a compromise:

- The advisory panel of the National Research Council's food protection committee will meet in Washington Jan. 19. This panel includes many of the industry representatives who've been working on one or more of the additive bills going to Congress (*CW, Jan. 1, p. 40*).
- There's a chance that Assistant Secretary Bradshaw Mintener of the Dept. of Health, Education & Welfare will call a meeting Jan. 18 or 20 to encourage industry and Congressional representatives to agree on a single bill.
- And the New York State Bar Assn.'s Food, Drug & Cosmetic Law Section will hold its annual meeting Jan. 27, with many of the same people attending.



WIDE WORLD

TEXAS' THOMAS: For unsold GR-S plant, he seeks extended bidding period.

One More Knock

By hallowed tradition, opportunity is just a one-time knocker; but in the case of the government's still unsold GR-S synthetic rubber plant at Baytown, Tex., one determined congressman wants to bring opportunity back for one more rap.

Rep. Albert Thomas (D., Tex.), in whose district that $8-million copolymer plant lies, is disappointed that—under the present law—that plant is likely to be closed within three months. Thomas says that one of the first bills to go into the hopper of the 84th Congress this week will be his proposal that additional time be allowed for the Rubber Producing Facilities Disposal Commission to try to sell the plant.

Of the three synthetic rubber plants remaining unsold when the original deadline passed (*CW Newsletter, Jan. 1*), the Baytown plant is regarded as the only one that could be economically operated.

This facility is being operated by General Tire & Rubber Co., and that firm was the sole bidder on it during the commission's 13-month selling period. It was an open secret in industry circles that General's bid was considerably lower than the price the commission had in mind; in fact, Humble Oil & Refining Co.—which bought the butyl and butadiene plants in Baytown—held up signing a firm sales contract with General because of doubt that the copolymer unit would be sold.

In the disposal program enacted by Congress in 1953, the primary criterion was that the commission must get a "full, fair" value for the plants. Observers have felt that by turning down General's bid on the Baytown plant, the commission has strengthened its position to combat the "give-away" criticism that's sure to be forthcoming from some congressmen. Those lawmakers—who probably make up only a small minority—are likely the only ones who'll be opposed to giving General another chance to raise its bid.

EXPANSION . . .

Sodium Hexametaphosphate: Westvaco Mineral Products Division, Food Machinery & Chemical Corp. (New York), has completed construction of its new sodium hexametaphosphate plant at Newark, Calif. Capacity: 12 million lbs./year.

•

Zinc Oxide: Northwest Refining and Chemical Co., which hopes to manufacture commercial white zinc oxide, has started construction of a plant at Spokane, Wash. Ore will be obtained from deposits located in the Coeur d'Alene and Metaline districts of Washington.

•

Caustic Soda: Hooker Electrochemical Co.'s new caustic soda plant at Montague, Mich., has added evaporation equipment to produce 73% caustic soda (in adition to 50% caustic, as planned earlier). Company officials have also purchased additional land adjacent to their present plant site.

•

Acetylene: Simpson Coal & Chemical Corp. (New York City) (a subsidiary of Standard Ore & Alloys Corp.) has secured both plant site and natural gas rights in Natchez, Miss., as a preliminary step to the construction of acetylene-producing facilities. Capacity will be 30,000 tons/year of acetylene, part of which will be utilized for an integrated vinyl chloride and polymer plant. Immediate construction plans also include facilities for production of 60,000 tons/year of ammonia.

•

Petroleum Waxes: International Waxes Ltd. (Toronto) has started construction of a $300,000 plant for the refining and production of industrial petroleum waxes. Capacity: 140,000 lbs./day of waxes.

COMPANIES

Stockholders of American-Marietta Co. will be asked to approve a recommendation to increase the company's authorized Class A and B common stock to effect a 2-for-1 stock split. Under the proposal, authorized Class A common would be increased to 6 million shares, Class B to 1.4 million. (Class A is publicly held, while all Class B common stock is owned by the Hermann family.)

•

The Atomic Energy Commission has let contracts totaling nearly $60 million for construction and expansion of uranium refining and processing facilities in Missouri and Ohio. Fruin-Colnon Construction Co. (St. Louis) and Utah Construction Co. (San Francisco) took down the bulk of the contracts—received a joint bid (of $39.8 million) to expand existing AEC facilities of Mallinckrodt Chemical Works (St. Louis) and build a new plant at the Ordnance Works, near St. Louis.

Maxon Construction Co. (Dayton, O.) received a contract too (for $20 million) to modify existing units at Fernald, O.

•

Air Reduction Co., Inc. has awarded the contract for construction of its vinyl acetate monomer plant at Calvert City to Lummus Co. Capacity of the plant will be 30 million lbs./year of monomer; cost is estimated at $3 million; completion is scheduled for early 1956.

Called Up Early

SUMMONED to Washington one month early is Herbert Bertine, assistant counsel of Allied Chemical & Dye's General Chemical Division, who last week began his six-month tour of duty as director of the Chemical & Rubber Division of the Commerce Dept.'s Business & Defense Service Administration. Bertine—a New York born, Princeton and Columbia educated lawyer who learned his Washington ropes with the old War Assets Administration and the Reconstruction Finance Corp.—was called to BDSA ahead of time because his predecessor, Esso Standard's Carl Morrison, was needed this month in his Esso office.

A GOOD HEAD PAYS ...IF YOU'RE A BREWER!

IT MAY COST IF YOU'RE NOT!

SWIFT'S DEFOAMER

CAN HELP TAKE YOU OUT OF THE FOAM BUSINESS!

Foam is *fun* . . . in its place. And one of its places is brimming over a cold glass. When it bubbles out of manholes, stops pumps, floats with the breezes around sewage treatment plants or takes up valuable production time, labor and space . . . then it's *trouble*, costly trouble. Care in selecting the *right* kind of defoamer is smart business, too. One of our customers, a leading manufacturer of emulsion type paints, found that he could use ½ as much of Swift's defoamer in his mixing and filling operations and control foam *better* than with a product he had been using. The reason? Years of research and experience with a variety of foam problems, care in manufacture, and wide selection of raw materials for the job, help us to produce defoamers that go farther because they are high in activity . . . *specialized* products developed for specific jobs. Here are a few uses:

Emulsion or Latex Paints • Fermentation Processes
Wet Process Phosphoric Acid Production • Paper Manufacture

If you can add *your* product to that list . . . and you're *not* a brewer, or in another industry where foam is desirable, then why not write for details on a trial order of a Swift's Defoamer? A trial will convince you and . . .

ONE TRIAL IS BETTER THAN A THOUSAND CLAIMS

Oleic Acid (Red Oil) • Animal Fatty Acids • Vegetable Fatty Acids • Stearic Acids • Hydrogenated Fatty Acids • Larex (Swift's Lard Oils) • Neatex (Swift's Neat's-foot Oils) • Sperm Oils • Spermaceti U.S.P. • Monoglycerides • Sulfonated Oils • Textile Processing Oils • Anti-Foam Agents • Glycerine • Tallows • Palmex (for Steel Mills) • Hydrogenated Glycerides

Call Swift for INDUSTRIAL OILS and FATTY ACIDS

Another of Swift's Products for Industry

USE THIS COUPON FOR FURTHER INFORMATION

Swift & Company, Industrial Oil Dept. O-16
1840 165th Street
Hammond, Indiana

Please send data on the following products:

☐ Send information on Swift's Defoamers

☐ Send 8-page bulletin on all of Swift's Industrial Oil Products

*Name*_____ *Title*_____

*Company*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

From Any Angle: A Ticklish Subject

With the red-hot subject of lower tariffs high on the agenda when Congress convenes this week, some chemical executives are peering at the recent rise in Iron Curtain trade—as fuel for their verbal guns.

Odds are about even, they claim, that if the government gives the green light to a pending trade agreement with Moscow (butter for manganese, chrome), other commodity swaps will follow. Not that anyone's expecting a formal East-West trade policy shift immediately, but the whole cold war tenet is now emphasizing building trade and cultural relations first, economic relations to follow. And pushed to the extreme, trade deals (involving chemicals) could have a considerable impact on the whole tariff problem.

Setting It Off: Setting off what many chemical manufacturers choose to class as "the pattern of things to come" was Agriculture Secretary Benson's attempt to peddle Commodity Credit surplus butter to Russia late last month.

This for the Eisenhower Administration was actually a second pass at the bargaining-with-Russia question. Government authorities had turned down a Red bid for 40 million lbs. of butter last January for fear that U.S. housewives, taxpayers and their congressmen would object to selling butter to Moscow at less than then-current support prices.

Now, however, Benson is proposing to barter butter for manganese, chrome and other nonperishable strategic commodities – thus bypassing possible public objections (since price is no longer directly involved).

Implications of the reconsideration of Moscow's offer, many chemical men agree, go far beyond this one deal. "The whole scheme dovetails neatly," one manufacturer points out, "into the whole drift of Eisenhower's cold war policy from guns to butter."

If the butter transaction goes through, the reasoning follows, other commodity exchanges are sure to follow—and could, if recent trends are reliable (*see table*) wreak considerable havoc on many chemical manufacturers—especially in the field of synthetic organic compounds.

On the other side of the ticket: formal East-West trade policy shifts aren't liable to come overnight; Washington is virtually sure to save major trade concessions as bargaining counters for the next Big Four conference.

Further: East-West trade potential is small—at best, and the Soviet Bloc has neither goods nor money to finance much increase in imports.

Fireworks are sure to pop in the weeks ahead, however, on both sides of the question. And recent East-West chemical trade is a good bet to be drawn into the fracas.

Here's How Chemicals* Are Flowing Through the Iron Curtain

(in thousands of dollars)

FROM

	U.S.S.R.			Other Eastern Europe			China		
	1952	1953	1st Half 1954	1952	1953	1st Half 1954	1952	1953	1st Half 1954
Austria	....	....	....	$943	$830	$489	....	$123	$42
Belg.-Luxem.	$ 82	$157	$78	2494	3170	1424	$90	63	24
Canada	....	....	....	113	405	5	....	35	47
Denmark	....	....	..13	6314	4303	134	....	13	....
France	....	....	..34	2939	628	228	834	865	477
Germany, W.	153	166	1674	1080	2022	897	1304	1184	615
Great Britain	2301	2798	1634	5012	3914	2112	184	921	598
Italy	136	118	162	1392	1649	802	300	135	137
Netherlands	299	513	365	1228	1523	1113	46	31	44
Norway	....	....	....	2868	1662	1087	....	2	....
Sweden	....	4	....	4592	3797	2817	27	117	69
United States	172	114	59	3141	3369	1283	146	39	2

TO

	U.S.S.R.			Other Eastern Europe			China		
	1952	1953	1st Half 1954	1952	1953	1st Half 1954	1952	1953	1st Half 1954
Austria	....	....	$1	$6206	$4589	$5043	....	$16	....
Belg.-Luxem.	$110	$1	....	8027	5310	3300	....	1256	$131
Canada	....	....	....	293	245	62	$114	....	....
Denmark	....	....	....	935	516	317	132	76	....
France	1414	1385	391	3650	916	1649	1107	749	4268
Germany, W.	146	474	571	8284	9109	6549	1165	6632	5070
Great Britain	57	132	108	2470	2759	1833	7376	2370	1212
Italy	1200	1366	477	1565	3252	2055	1316	2863	1862
Netherlands	366	389	397	2595	3887	2450	14	3950	403
Norway	....	....	202	135	140	229	....	22	....
Sweden	....	14	....	2745	1872	792	17	142	66
United States	....	....	21	16	....	8	....	....	....

*Inorganics, organics, coal-tar chemicals, tanning extracts, paints, drugs, essential oils, soap, cosmetics, fertilizers, explosives.
Source: United Nations Statistical Office.

For Commercial Trials

EMULSIFIABLE

A-C* Polyethylene!

LOW-molecular-weight A-C POLYETHYLENE is easily emulsified in water using anionic, cationic or non-ionic "soaps"... and now limited quantities are available for commercial trials!

FOR FREE samples plus technical help in adapting low-molecular-weight A-C POLYETHYLENE to your company's production, send in the handy coupon. Attach it, if possible, to your company letterhead. Please indicate the specific use you intend!

*trade-mark

SEMET-SOLVAY PETROCHEMICAL DIVISION
Allied Chemical & Dye Corporation
40 Rector Street, New York 6, N. Y.

Allied Chemical

Please send me free samples of Emulsifiable A-C POLYETHYLENE.

☐ Please have a technical service representative call on me.

☐ The particular use I intend for Emulsifiable A-C POLYETHYLENE is _____

Name _____

Title _____

Company _____

Address _____

City _____ State _____

Type of Business _____ CW-1

At Latest Count, Here's How Profit Sharing Is Growing

- **By mid-1954, 25,910 pension, profit-sharing and stock bonus plans had been approved by the Internal Revenue Service.**
- **In addition, some 1300 applications are pending.**
- **Of the 1954 total, nearly 30% (or 8000 plans) are profit-sharing plans.**
- **This—as compared with only 549 plans of all types in existence in the U.S. in 1939.**

But Doubts Still Linger

With 1954 safely tucked away, chemical management was viewing with something like surprise the sudden upsurge of profit-sharing plans over the past 12 months. Approximately 2000 new "share the cream" ventures have sought, and received, the go-ahead from the Treasury Dept. In addition: the total number of sharing plans extant today indicates that in the past five years more contracts have been approved than in all previous years combined.

Such a trend places companies without profit-sharing plans strictly on the spot. From the standpoint of employer-employee relationships they're forced to toe a tenuous path; from the standpoint of public relations they're apt to be placed in an increasingly difficult position.

Fanfare usually accompanies the news as each new profit-sharing company climbs on the bandwagon; accolades are heaped upon the new "member" company.

Such was the case, for example, in Houston some weeks ago when The Champion Paper and Fibre Co. put its new profit-sharing proposal into operation, described it as a "giant step forward in . . . progress," and one which would make all company workers "partners in paper and in profits."

Buzzing rumors aren't calculated to help matters, either. "Our greatest difficulties arise," admits one East Coast company president, "when other big firms are reported to be nearing agreement on profit-sharing plans. It stirs up everyone, forces us to thrash everything over again."

It's obvious from such comments that management is not completely convinced that profit sharing is the panacea to solve labor relations problems, cut plant waste, increase worker productivity, and swell investors' coffers. And a number of them are openly fearful that profit sharing will not adapt itself well to their particular type of chemical business.

Remarks one doubting employee relations director: "We feel from our experience that workers need no incentive other than attractive wages (and a fair pension plan), with alert management relations, to keep operations humming happily." Furthermore, most apprehensive viewers are quick to cite companies that replaced sharing plans with the more usual type of pension arrangement, after sharing failed to work out as expected.

On the other hand, advocates of sharing plans argue that "the system works where management and workers want it to." They're anxious to stress: sharing does not substitute for sound company management. "The secret, if there is one," says a field consultant, "is in profit sharing's ability to instill management's viewpoint in the worker. It makes each man responsible for the company's success because he benefits directly."

Outstanding Successes: Does profit sharing really work in the chemical process industries? In answer, the industry's association* offers three classic examples:

- Eastman Kodak Co., where a plan has existed for 42 years, calls for employees to receive a certain share of profits in proportion to stockholder dividends.
- Procter & Gamble Co., which established a profit-sharing system over 50 years ago, today includes cash payments, stock, retirement benefits, and even a guaranteed annual wage feature in one compact bundle.
- S. C. Johnson and Sons, Inc.'s cash plan, in effect for about 37 years, was just recently amended to a partly deferred benefit plan.

Johnson's switch, the council claims, is setting the pattern of profit-sharing ideas—vintage 1955. It reflects what seems to be a growing preference for deferred plans in place of the more stereotyped cash-type arrangements—common in past years.

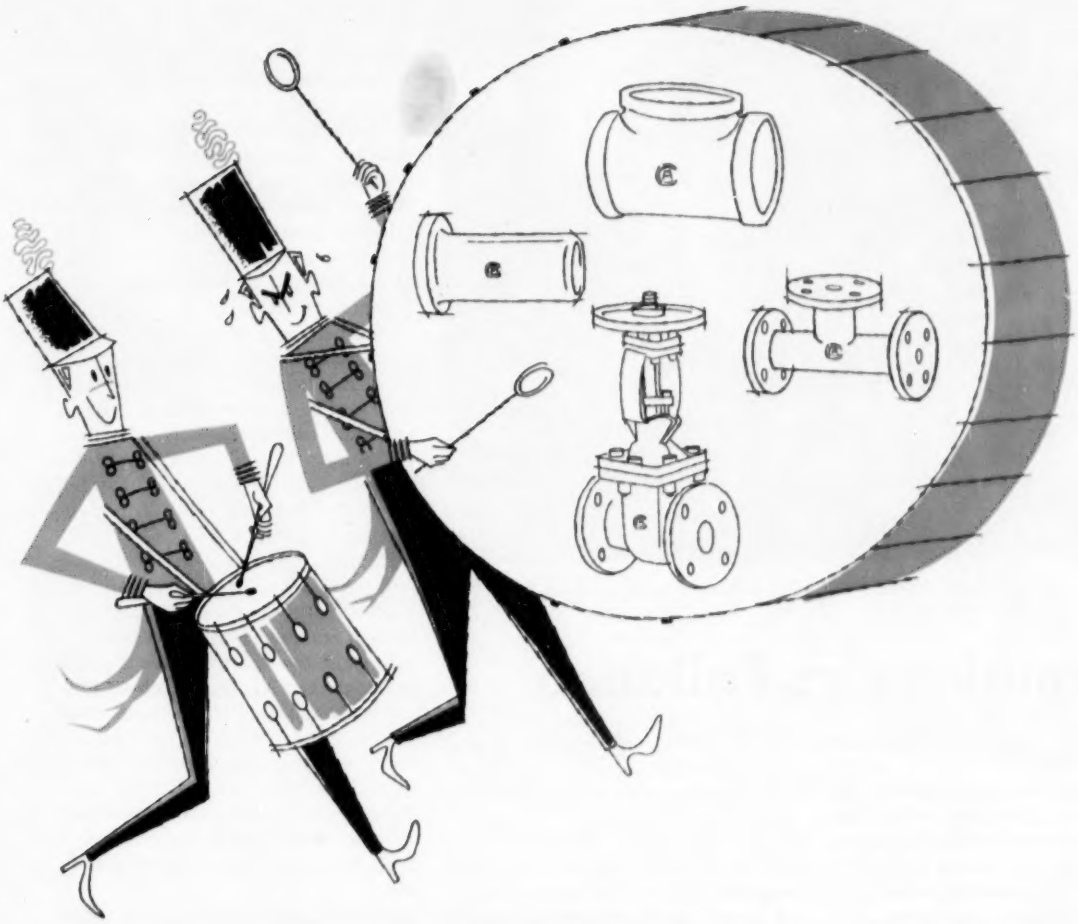
But whatever the particular type desired, there's little doubt that profit-sharing plans as a whole are gaining popularity rapidly. Millions of dollars will be paid out this year to workers throughout the nation; and the movement seems to be catching on among all types of companies, regardless of size.

That being the case, it seems inevitable that many chemical companies in the months ahead will have to face the fact that profit-sharing plans are no longer "an industry oddity," and re-evaluate their use as a tool for increasing productivity and profits.

"The pressure's on us now, for a fact," states one Midwest public relations man. "In virtually every company-worker conference the subject comes up nowadays. Workers see other firms' employees getting the benefits of profit-sharing plans, feel they too should share in the company's net profits. To hold many of them—in a tight manpower squeeze—we're almost forced to adopt some sort of system soon—or suffer the consequence of losing a number of our key workers."

"This looks like the year we'll have to settle the question one way or the other," agrees another company vice-president. "The entire tenor of opinion in industrial circles is changing. That means a fresh look at profit sharing for us . . . and soon."

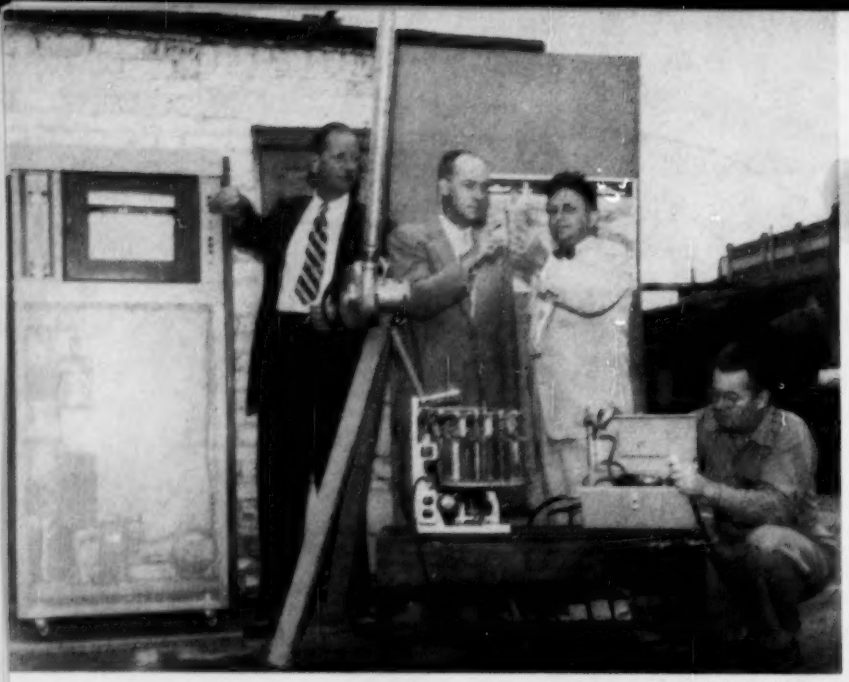
* Council of Profit Sharing Industries, Chicago.



your distributor carries the big one!

When it comes to stainless steel valves, fittings and accessories, why not let your COOPER ALLOY DISTRIBUTOR carry the big inventory load for you. He's set up to do it efficiently and well . . . His large warehouse facilities can take the weight from your shoulders, and his policy of "service first" is your guarantee of reliable handling. You'll save time, money and headaches if you take your COOPER ALLOY DISTRIBUTOR into your confidence . . . advise him of your current and anticipated needs . . . and let him order and stock in keeping with your requirements. For the best in stainless steel valves and fittings, insist on COOPER ALLOY . . . for the best in service, buy through your local COOPER ALLOY DISTRIBUTOR. Write or call for list showing your nearest distributor.

COOPER ALLOY
CORPORATION • HILLSIDE, N. J.
Valve & Fitting Division



BILL R. WATSON, LOS ANGELES

LOS ANGELES' SMOG DETECTIVES: In their data, a basis for 1955 battle . . .

Lawmakers vs Pollution

Still more pollution control activity on the part of state governments is contemplated in bills being readied for debate in the state legislatures that convene this month and in the spring. Some of these bills are of potentially grave concern to chemical process companies with plants in those states. And with 42 legislatures starting their sessions in January and with Florida and Alabama lawmakers scheduled to meet in April and May, respectively,* chemical firms with plant sites in several states may be busy during the next few weeks just keeping track of what's going on in the state capitols.

In a number of states, pollution control laws have already been passed, and it's pretty much up to the enforcement agencies to carry out the prescribed programs. But in other states—including several that have chemical plants galore—proposals are coming up for important changes in laws on control of both air and water pollution.

Two-Way Attacks Planned: In both Texas and California, legislators will be called on later this month to launch new attacks on both kinds of pollution.

California is particularly excited about air pollution because of last October's much publicized smog wave at Los Angeles. One example of what the legislators will debate: Governor Goodwin Knight's suggestion— offered one week after the recent election—that air pollution control officials be given the power to shut down (during "emergency periods") any industrial plants believed to be contributing to smog formation.

Another major revision proposed for California's smog prevention program: a bill that would permit—for the first time in that state—establishment of air pollution control districts along regional lines, instead of on the county-by-county basis now required. This bill would authorize a control district encompassing San Francisco and the eight other "Bay area" counties.

A third idea on stepping up air pollution abatement comes from Assemblyman Stanford Shaw, chairman of a joint legislative subcommittee that has held eight hearings on the subject during recent months. His proposal: that smog-fighting officials be elected, instead of being appointed by county supervisors. The feeling on his committee is, Shaw explained, that elected officials would move faster on this work, be more responsive to the public will.

State Board Urged: Even more concerted action against water pollution will be one aim of another bill expected to be introduced at Sacramento this month. It will call for creation of a State Dept. of Water Resources, whose powers would supersede those of the present regional districts. Among those advocating more stringent state water

* The only state legislatures that don't hold regular sessions this year are those of Kentucky, Louisiana, Mississippi, Virginia.

WIDE WORLD

WIDE WORLD

FREDERIC LEWIS

FACTORIES, AUTOS, RUBBISH BURNERS: As major smog causers, they'll get attention from scientists, legislators.

**Use your present equipment . . .
open or closed kettles . . . and produce
at competitive prices a superior wall paint with . . .**

Now you can add a high quality, odorless flat wall paint to your line without buying special processing equipment. You build your own vehicle *right from the resin* at substantial savings over a purchased vehicle. You can offer your customers a many-ways-better paint at competitive prices.

- ***Excellent Adhesion***
- ***Good Leveling Qualities***
- ***Uniform One-Coat Coverage***
- ***Unlimited Range of Colors***
- ***Good Holdout***
- ***Superior Washability***

Write for the technical bulletin on odorless wall paint today and be the first in your area to take advantage of this new Shell Chemical development.

SHELL CHEMICAL CORPORATION
CHEMICAL PARTNER OF INDUSTRY AND AGRICULTURE
380 Madison Avenue New York 17, New York

Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco • St. Louis
IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited • Montreal • Toronto • Vancouver

MAIL COUPON BELOW

The BETTER the ODOR the BIGGER the SALES!

IF MISERY LOVES COMPANY...

You've got lots of it. Especially if your business misery is due to unpleasant processing or product odors that tend to lower employee efficiency or limit sales. Look at the distinguished company you are in —plastics, paint, petroleum, paper, rubber, textile, fertilizer, soap—to name but a few of the industries that have been plagued for years with hard-to-control odor conditions. But all of these industries have been aided by specialists like ourselves whose business it is to attack such problems scientifically through the chemistry of aromatics. Write us if your firm has any odor problem to contend with and our Technical Service Division will gladly assist you in correcting it.

PLEASE FILL IN AND MAIL

FRITZSCHE BROTHERS, Inc.
76 NINTH AVE., NEW YORK 11, N. Y.
We are interested in ☐ PERFUMES ☐ ODOR NEUTRALIZERS for use in the manufacture of products checked below. What do you recommend?
☐ ADHESIVES ☐ FINISHES ☐ INK
☐ LEATHER ☐ PAINT ☐ PLASTICS
☐ PETROLEUM PRODUCTS
☐ POLISHES ☐ RUBBER ☐ SOLVENTS
☐ SPRAYS ☐ TEXTILE CHEMICALS
☐ OTHERS: _____

(Note: Please send accompanying letter giving details of your particular problem.)

COMPANY: _____
ADDRESS: _____
CITY: _____ STATE: _____
ATTENTION: _____
TITLE: _____

FRITZSCHE Brothers, Inc.
Established 1871
PORT AUTHORITY BUILDING
76 NINTH AVENUE, NEW YORK 11, N.Y.

pollution control legislation is State Engineer A. D. Edmonston, who recently warned the Irrigation Districts Assn. about increasing contamination in the state's streams and underground water tables.

In Texas, the State Health Dept. is preparing a set of bills designed to cover both air and stream pollution. William Harris Bell, the department's legal consultant, has indicated that one measure will provide that before any new industrial plant can be built, blueprints—showing how smoke and fumes are to be handled—must be submitted to the department's engineering division. He also suggests that the legislature could set up a state air pollution authority that—working under the Board of Health—would collect data, make regulations, receive complaints and hold hearings, determine violations and issue compliance orders.

The Texas legislature also will be asked to approve issuance of $100 million in state bonds to help communities build dams for water conservation.

While contemplating giving state agencies a stronger hand in pollution control, legislators are expected this year to be more aware of technical problems involved.* They'll be influenced by findings such as Armour Research Foundation's discovery that 65% of the dense smoke over Chicago "is produced by people operating in violation of the city ordinance." Thus lawmakers may be more receptive to technical advice from legislative representatives of the chemical industry—which is likely to be most affected by the laws, and most capable of finding abatement methods.

* The Southern California Air Pollution Foundation—confident that its more ambitious research program will be useful to industry and government throughout the nation—late last month changed its name to simply "Air Pollution Foundation."

IMPACT

Sweet Notes of Profit

PLASTIC MAKERS can't complain about tempo when it comes to how rapidly the record industry is swinging toward greater use of their products. Only a little over a decade ago, most discs were breakable shellac compositions, more recently have been mainly ethyl cellulose-based. Now both 33⅓- and 45-rpm. unbreakable pressings are made of vinyl resins (some 20 million lbs./year), or polystyrene (approximately 6 million lbs.). Also consumed by the record-making industry: lead stabilizers, stearate lubricants, low-cost thermoplastic fillers.

CONVERT THESE FACTS TO PROFITS!

ETHYLENE

AND ITS MAJOR DERIVATIVES

IN THIS FACTUAL ANALYSIS of Oklahoma's petrochemical possibilities, the Chemical Plants Division of the Blaw-Knox Company presents finite facts to be converted to the profit potentials of Ethylene manufacture in Oklahoma.

This report takes you from basic Ethylene raw materials to its major derivatives and includes technical and economic considerations in the manufacture and marketing of these products. The sources of raw materials and utilities are presented and the available processes described.

. . . in Oklahoma!

VAST PETROCHEMICAL RAW MATERIAL RESERVES
. . . Exist for Industry!

Crude Oil Reserves	nearly **2 Billion** barrels
Natural Gas Reserves	over **12 Trillion** cubic feet
Natural Gas Liquid Reserves	**300 Million** barrels
Liquid Hydrocarbon Reserves	over **2 Billion** barrels
Underground Coal Reserves	**55 Billion** tons

Water, too . . . large quantities of industrial water are available at numerous locations in Oklahoma. Reservoirs and surface water in the east . . . wells and underground supplies in the west.

OKLAHOMA OFFERS A HEALTHY INDUSTRIAL CLIMATE IN ONE OF THE NATION'S FASTEST GROWING MARKET AREAS!

Realizing that the **CHEMICAL INDUSTRIAL EXECUTIVE** is primarily interested in **facts**, the Oklahoma Planning and Resources Board employed the Blaw-Knox Company to make this factual survey, presenting accurate information on the production potentials of Ethylene and its major derivatives in Oklahoma.

Oklahoma's complete Ethylene picture contained in . . .

7 sections
27 tables
8 maps and charts

135 PAGES OF FACTS!

ANNUAL INCOME	$53 Billion
RETAIL SALES	$39 Billion
BANK DEPOSITS	$37 Billion

. . . all within a 500-mile radius of Central Oklahoma.

Write to Czar Langston, Director
OKLAHOMA PLANNING & RESOURCES BOARD
State Capitol Bldg. Oklahoma City, Okla.

Executives of the Petrochemical Industry are invited to write to the Oklahoma Planning and Resources Board for the ETHYLENE REPORT, at no obligation. Also available for general information is the free brochure, "Oklahoma . . . State of Industry."

CHEMICALS FOR THE TEXTILE INDUSTRY

Stauffer CHEMICALS

SINCE 1885

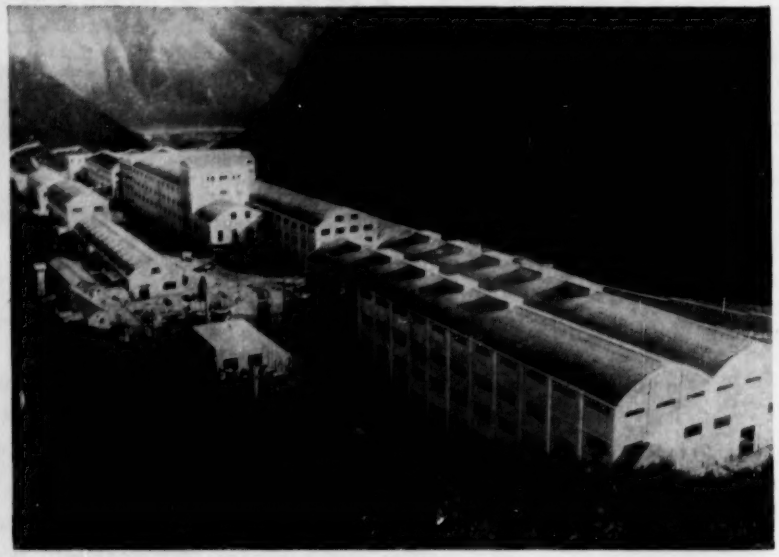
With the progress of synthetic fibers the textile industry has been one of the fastest growing chemical-consuming industries in the country. The combined production of synthetic fibers alone is estimated at about 160 million pounds for 1953. New plants in new areas are creating increased demands.

Stauffer has tank car quantity supplies of carbon bisulphide, caustic soda, sodium hydrosulphide, sulphuric acid, chlorine and other textile basic materials, which can be delivered with speed from plants located in areas convenient to textile manufacturing. In fact, *eight* carbon bisulphide plants mean that Stauffer gives you the advantage of several sources for rapid deliveries.

Stauffer... guaranteed by its name!

STAUFFER CHEMICAL CO.

380 Madison Avenue, New York 17, N. Y.
221 No. LaSalle Street, Chicago 1, Illinois
824 Wilshire Blvd., Los Angeles 14, Calif.
326 South Main Street, Akron 8, Ohio
636 California Street, San Francisco 8, Calif.
P.O. Box 7222, Houston 8, Tex. • Apopka, Fla.
North Portland, Oregon • Weslaco Texas



PHARMACEUTICAL OUTPUT: Up 10% in Italy in 1954.

FOREIGN . . . .

Expansion/Italy: Along with its recent emphasis on pharmaceutical expansion (*see cut*), the Italian government is pushing synthetic rubber-producing facilities. Now under construction at Ravenna is a plant to produce 30,000 tons/year of synthetic rubber from methane. Cost: $75 million.

Italy now imports some 57,000 tons of natural rubber and 10,000 tons of synthetic rubber annually, expects to have between 15-20,000 tons of synthetic available for export trade when its new Ravenna facilities go into production in 1957.

•

Fertilizer/Russia: Russian authorities have revealed completion of potassium-producing facilities at Berezniki in the western Ural Mountains north of Molotov. The new units are said to be fully mechanized from mine to warehousing of the finished product—"potassium fertilizer for Soviet farmers."

The official Communist party newspaper *Pravda* reports that "advanced, highly productive equipment has been installed" at the Berezniki mine site, speaks in particular of a 14-stage vacuum crystallization installation for cooling impregnated lyes and obtaining large-crystal potassium chloride.

•

West German Stock: German stock exchanges have registered an unprecedented boom in shares of I. G. Farben successor companies' stock in recent weeks. Mainly responsible for the run: large purchases by foreign European buyers.

Behind the move were reports, circulated throughout the Continent, that Farbwerke Hoechst, Bayer Leverkusen, and Badische Anilin- & Soda-Fabrik would increase their capitalization early in 1955, followed by stock splits.

•

Plastics/West Germany: The German plastics industry has set another post-war record. Total 1954 production was expected to be 310-315,000 tons—almost 30% higher than 1953 records. Polymerization products account for some 45% of total output.

•

Alcohols/Great Britain: Imperial Chemical Industries Ltd. will expand production of alcohol at its Billingham, County Durham, plant. Total capacity (when expanded facilities are in operation): 40,000 tons/year of higher alcohols.

•

Fertilizer/India: A $20-million project to produce 250,000 tons/year of fertilizer and 5-6 tons of heavy water, is part of India's immediate atomic energy program. Plant units will be built in northwest India, near the Bhakra-Nangal hydro project, and will take three years to complete. Also under way: a plant to extract uranium and thorium near Bombay (due on-stream by next May).

Rohm & Haas Acrylate Monomers Yield 100% Permanently Plasticized Copolymers

When you copolymerize Rohm & Haas acrylate monomers with vinyl chloride, vinyl acetate, vinylidene chloride, acrylonitrile, or styrene, primary chemical bonds give you permanent plasticization. The acrylate monomers, because they copolymerize, cannot be extracted by even the strongest solvents. They will not migrate or volatilize. Films and coatings resist embrittlement with age; food products will not be contaminated.

Acrylic copolymers require lower processing temperatures, form films more readily because of increased flow, and have added resistance to deterioration by heat and light. Often, plasticization by copolymerization may be all the plasticization required. At other times, copolymerization with acrylate monomers will serve to cut down the amount of external plasticizer used. Write Department SP for authoritative literature on acrylate monomers.

Rohm & Haas acrylic monomers include:

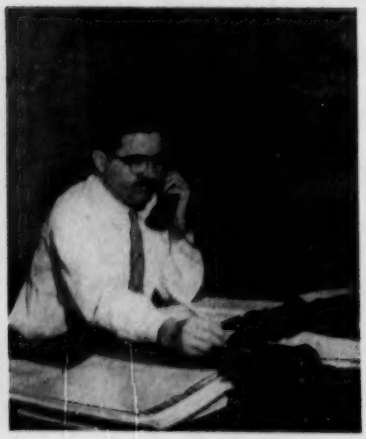
Methyl acrylate
Ethyl acrylate
Butyl acrylate
2-Ethylhexyl acrylate
Methyl methacrylate
Ethyl methacrylate
Butyl methacrylate
Hexyl methacrylate
Decyl-octyl methacrylate
Lauryl methacrylate
Stearyl methacrylate
Glacial methacrylic acid
Glacial acrylic acid
Calcium acrylate

CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries



WIDE WORLD

RESEARCHERS RHODEHAMEL, RUSKIN: On procaine penicillin, who was first?

Timing's of the Essence

In all the haste with which the penicillin patent lawsuits were filed last spring (*CW, May 22, '54, p. 19*), a few things—including one defendant—were overlooked; but now those omissions have been picked up in a new complaint, the two suits have been consolidated into one, and both sides are standing by for the trial—which probably won't come before 1956.

In their amended complaint, Simon Ruskin and his Physiological Chemicals Co. of New Rochelle, N.Y., are including Charles Pfizer & Co. as well as Eli Lilly & Co. as defendants, and are asking judgment "against each defendant in the sum of $20 million, to be trebled in accordance with the law," plus court costs.

Lilly denies that Ruskin has stated a claim on which relief can be granted, asserts that the Ruskin patent (No. 2,676,961) is invalid, and asks that the suit be dismissed. Pfizer also asks dismissal and calls the Ruskin patent invalid. Lilly and Pfizer admit that they were parties to an interference action in the U.S. Patent Office and that they entered into a settlement agreement on another interference.

Overlapping Patents: Both Ruskin and Lilly's Harley Rhodehamel hold patents on procaine penicillin, and it appears that their claims overlap to a considerable degree. For example, Ruskin claims discovery of procaine salt of penicillin "to provide therapeutic compositions . . . either in the dry condition or in solution form"; and Rhodehamel claims "a solid procaine salt of penicillin" and "a therapeutic composition comprising a liquid suspending medium and finely divided solid procaine penicillin."

In an earlier lawsuit at Indianapolis, Rhodehamel was found to be entitled to a discovery date of March 31, 1947. His patent application was dated Sept. 15 of that year, and the patent (No. 2,515,898) was issued July 18, 1950. Ruskin's patent was not issued until April 27, 1954, and his application date is listed on the patent as Nov. 16, 1948; but he contends that procaine penicillin was covered by an application that he made on Feb. 24, 1945.

Ruskin charges that the defendants were aware of his 1945 filing date, and that they agreed to cooperate along these lines in opposing the Ruskin claim: Lilly was to have priority on its patent application, Pfizer was to receive a royalty free license and a share in royalties, and Lilly was to fight the Ruskin application in the Patent Office. Lilly did file a "public use" petition against the Ruskin application Sept. 27, 1950; but early in 1954, a primary examiner dismissed that proceeding and later the Commissioner of Patents denied Lilly's request for a review of that decision. Purpose of that action, Ruskin says, was only to delay issuance of the Ruskin patent.

Damages from Delay: If it hadn't been for that delaying action, the new complaint declares, Ruskin would have received his patent three years earlier, and would have been able to prevent sales of procaine penicillin without royalty payment to Ruskin. The plaintiffs are asking $20 million damages on that count.

On a second count, Ruskin accuses Lilly and Pfizer of having licensed only a limited number of manufacturers to produce procaine penicillin, "and under restrictions so as to limit competition." The public, Ruskin avers, has been subjected to extra cost of the product for an additional three years, because the Ruskin patent now will expire in 1971 instead of 1968.

This suit—begun on the day the Ruskin patent was issued last April—points up some of the problems bedeviling the Patent Office (*see p. 11*). It poses the question: How did that agency come to issue two patents on such apparently similar claims? If the court finds that the claims do overlap and that one patent should exclude the other, there'll be a new outcry for modernization of Patent Office methods of processing applications, keeping tab on older discoveries.

LABOR

Livelier Unionizing: Anxious about the threat of more aggressive competition from the CIO, officers of the International Chemical Workers Union (AFL) are lining up help from AFL headquarters for a livelier organizing campaign at chemical plants this year. Secretary Marshall Shafer and Vice-President Sidney Garfield, Walter Mitchell and Joseph Donovan recently trekked to Washington to discuss strategy with AFL Secretary-Treasurer William Schnitzler. One of the first fruits of this new arrangement was the organization of ICWU Local No. 538 to represent employees of Allied Chemical's National Aniline Division at Hopewell, Va. ICWU credits this gain to the work of the AFL regional staff there.

•

Rights for 'Risks': The Engineers & Scientists of America—the organization that advocates collective bargaining for technical and scientific employees in large companies—is in the news this week with its crusade for a guarantee of "due process of law" in loyalty and security hearings for scientists and engineers engaged in national defense work.

First, ESA President Joseph Amann got from the U.S. Dept. of Defense a

Dependable new name in Chrome Chemicals

Columbia-Southern®, supplier of essential basic chemicals to industry for over half a century, is now proud to be able to serve your needs in chrome chemicals from its plant in Jersey City, New Jersey.

Columbia-Southern, the world's foremost merchant producer of chlorine, and a leader in the manufacture of alkalies, brings to the chrome field a rich background of knowledge in quality chemical production and an enviable record in customer service.

Columbia-Southern, a wholly owned subsidiary of Pittsburgh Plate Glass Company, provides your guarantee of stability, assured source of supply, and progressive policies that are conducive to pleasant business relationships.

Columbia-Southern welcomes your inquiries and the opportunity to serve you.

Bichromate of Soda

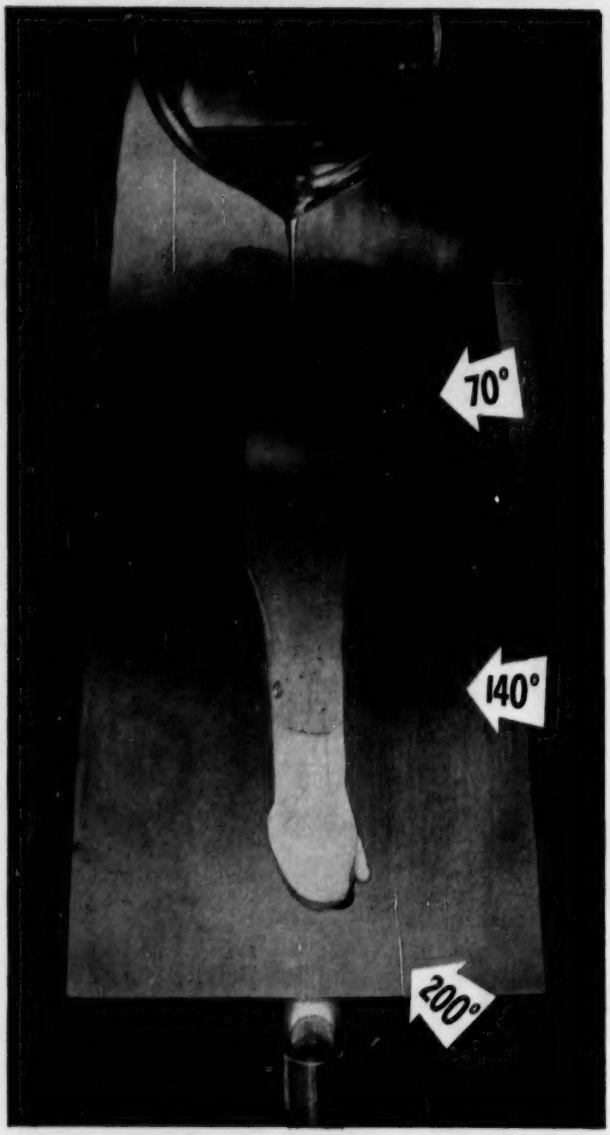
Bichromate of Potash powdered

Bichromate of Potash granular

Chromate of Soda

COLUMBIA-SOUTHERN CHEMICAL CORPORATION
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER · PITTSBURGH 22 · PENNSYLVANIA

DISTRICT OFFICES: Cincinnati • Charlotte • Chicago • Cleveland • Boston • New York • St. Louis • Minneapolis • New Orleans • Dallas • Houston • Pittsburgh • Philadelphia • San Francisco



DOW

Ever see a gum that gels when it's heated?

Methocel does . . . and in doing so, it provides the answer to some interesting industrial problems

You don't have to process leather or make ceramics to enjoy the benefits of Methocel® (Dow methylcellulose). In addition to its binding applications, this cellulose gum is successfully serving many industries as a valuable thickener, suspending agent, emulsion stabilizer and film former.

If you need an economical *thickener*, a two- to three-per cent solution of high-viscosity Methocel will thicken water so it will hardly flow. As an emulsion *stabilizer*, Methocel acts as a protective colloid. As a suspending agent, it minimizes settling and caking of dispersed solids in aqueous systems. The tough, colorless coatings formed by low-viscosity Methocel make it an ideal material for boxboard sizing or greaseproof packaging.

Gels when heated, soluble in water, inert, odorless and tasteless—Methocel is indeed a unique gum. For more information and a free sample write to THE DOW CHEMICAL COMPANY, Midland, Michigan.

SEND FOR YOUR EXPERIMENTAL SAMPLE

THE DOW CHEMICAL COMPANY

Dept. ME1192B-3, Midland, Michigan

Wide viscosity range of Methocel is available—please indicate use field

Name

Title

Company

Address

City State

Ceramic glazes for fine dinnerware and tile are hardened and held for firing by using Methocel as a basic ingredient . . . it acts as a "fugitive" binder which fires away cleanly.

In the leather industry, pastes made with Methocel gain maximum bonding strength with heat to save time, money, and to improve the quality of hides being processed.

you can depend on DOW CHEMICALS

DOW

MC GRAW-HILL

ESA'S AMANN: For scientists in defense work, he asks "due process" ruling.

statement that "the industrial security program should not be used by the employer as a basis of action in discharging employees determined by him to be security risks"—in other words, an employer can determine that an employee is unqualified or incompetent, but the Defense Dept. should determine security risks.

Next, ESA asked permission to intervene in the Peters loyalty case now pending before the Supreme Court, and is requesting the high court to require fair hearings in security procedures. ESA declares that if the court approves the system under which Dr. John Peters was discharged from the Public Health Service in 1951, "the Defense Dept. will continue to force the security dismissal of our engineers and scientists without the opportunity for confrontation and cross-examination."

LEGAL . . . . . .

Sulfur Ship Suit: At Wilmington, Del., the owners of a sulfur-laden freighter presumed to be lost at sea have filed an admiralty action in U.S. District Court asking exoneration or limitation of liability for loss of crew members' lives and for loss of the cargo. The owners—Southern Steamship Co. and Philadelphia & Norfolk Steamship Co.—assert that they should not be held responsible for the loss because their ship was "strong, staunch, seaworthy, and properly manned." The ship had

Now you can have the advantages of USCOLITE* in your valves as well as in your piping

*Uscolite is a registered trade mark of United States Rubber Company.

Developed to supplement Uscolite* pipe and fittings, the new Uscolite bodied Hills-McCanna Diaphragm valve, now makes it possible to utilize Uscolite's advantages throughout your piping layout. The unique Saunders patent design of the valve coupled with the chemical resistance of Uscolite makes the valve ideal for plating, water treatment, and in the manufacture of fertilizer, bleach, storage batteries, pulp and paper, etc.

The Hills-McCanna Uscolite bodied valve is available in standard sizes from ½" through 2". It is suitable for pressures to 150 psi and for temperatures to 170° F. (at some sacrifice of pressure rating in larger sizes).

Write for details. HILLS-McCANNA CO. 2445 W. Nelson St., Chicago 18, Ill.

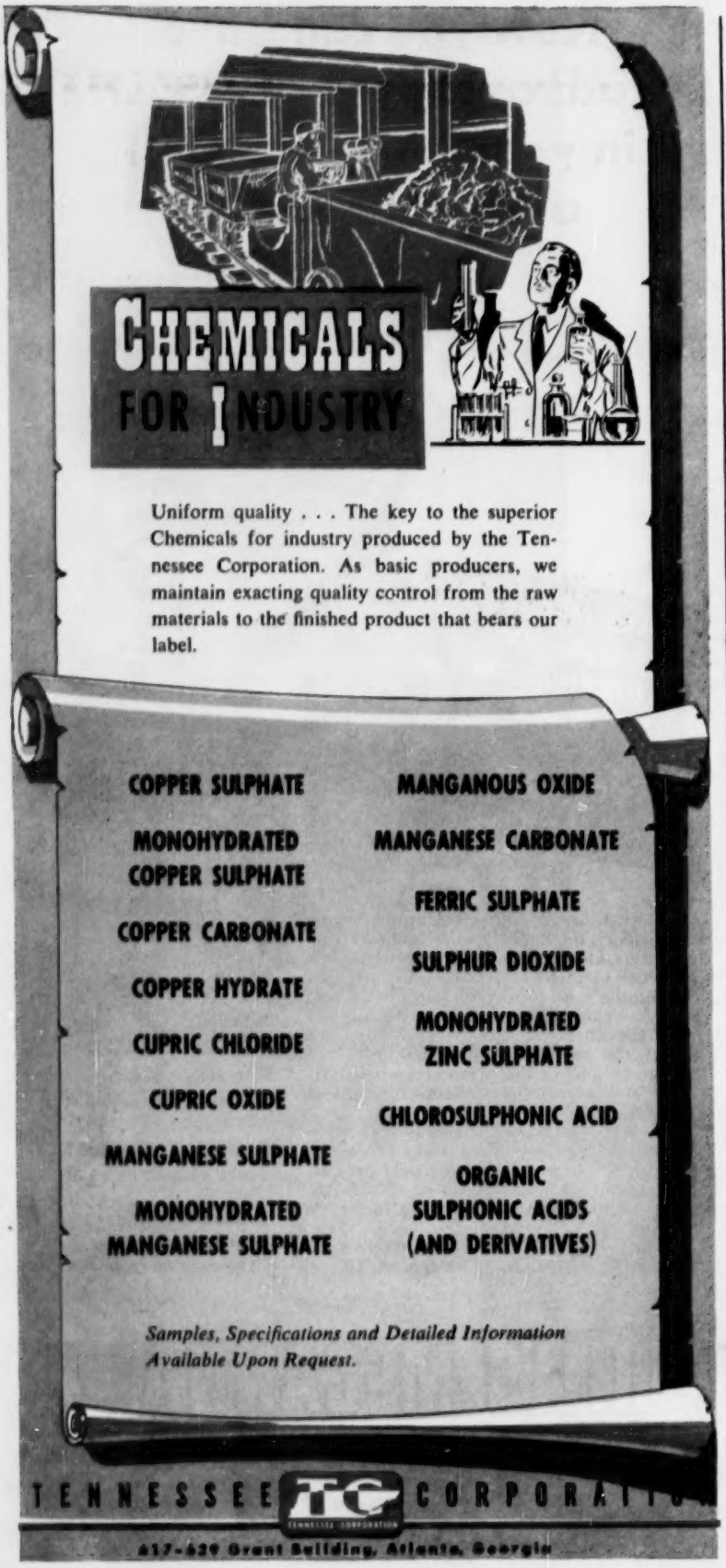
DESIGN DETAILS

- Working parts isolated from flow.
- No packing.
- Leaktight under pressure or vacuum.
- Simple pinch clamp closure principle.
- Minimum maintenance even in the severest service.

HILLS-McCANNA

saunders patent diaphragm valves

Also manufacturers of
Chemical Proportioning Pumps • Force-Feed Lubricators
Magnesium Alloy Sand Castings


CHEMICALS
FOR INDUSTRY
Uniform quality . . . The key to the superior Chemicals for industry produced by the Tennessee Corporation. As basic producers, we maintain exacting quality control from the raw materials to the finished product that bears our label.
COPPER SULPHATE
MONOHYDRATED COPPER SULPHATE
COPPER CARBONATE
COPPER HYDRATE
CUPRIC CHLORIDE
CUPRIC OXIDE
MANGANESE SULPHATE
MONOHYDRATED MANGANESE SULPHATE
MANGANOUS OXIDE
MANGANESE CARBONATE
FERRIC SULPHATE
SULPHUR DIOXIDE
MONOHYDRATED ZINC SULPHATE
CHLOROSULPHONIC ACID
ORGANIC SULPHONIC ACIDS (AND DERIVATIVES)
Samples, Specifications and Detailed Information Available Upon Request.
TENNESSEE CORPORATION
617-629 Grant Building, Atlanta, Georgia

B & I . . . . . .

picked up an estimated $25,000 worth of sulfur and was en route from Freeport, La., to Buckport, Me.

•

Expensive Labels: In Miami, it's alleged that the Christmas market for expensive perfumes proved too tempting for three young businessmen to resist. The charge: that they teamed up to counterfeit Chanel No. 5 perfume by making containers, labels and wrappers similar to those used on the genuine article. An investigator for Chanel uncovered the operation.

•

Trademark Pile-up: Just as is the case with patent applications (*CW, Dec. 18, '54, p. 32*), so it is with trademark applications—they're piling up in the U.S. Patent Office at Washington. During 1954, the Patent Office registered 15,939 trademarks and turned down some 8100 others; but the total number of disposals was less than the number of new applications, so the log jam of pending applications increased by some 2500 to a waiting list of more than 20,000, according to the U.S. Trademark Assn. Association President Sherwood Silliman—secretary of Vick Chemical Co.—says his group wants Congress to raise Patent Office fees so that the agency can expand its staff, handle applications more rapidly.

KEY CHANGES . . .

Richard C. Fenton, to vice-president, European operations, Pfizer Corp., New York City.

Walter R. Storrs, to director, manufacturing, O-Cel-O Div., General Mills Inc., Minneapolis.

R. L. Bateman, to director, Product Development, **W. A. Woodcock,** to manager, Fine Chemicals Div., and **R. H. Wellman,** to manager, Agricultural Chemicals Div., Carbide and Carbon Chemicals Co., New York City.

Louis S. Mann, to general sales manager, and **William A. Fessler,** to director, development, Daubert Chemical Co., Chicago.

Willard M. Bright, to director, research and development, Lever Brothers Co., New York City.

Robert L. Gibson, to vice-president, General Electric Co., Pittsfield, Mass.

Spencer Service is Wonderful

"Good old Tanky... always around when you need him!"

Plastics problem? Perhaps it can be solved by the new wonder plastic, polyethylene. Poly-Eth, Spencer's trademark for polyethylene, soon will be produced by our multi-million dollar plant at Orange, Texas. Right now the Poly-Eth Sales and Technical Service team is ready with ideas that could help you engineer better, more efficient products

SPENCER

America's Growing Name In Chemicals

SPENCER PRODUCTS: "Mr. N" Ammonium Nitrate Fertilizer • SPENSOL (Spencer Nitrogen Solutions) • Ammonia (Commercial and Refrigeration Grade) Aqua Ammonia • 83% Ammonium Nitrate Solution • Synthetic Methanol Formaldehyde • Hexamine • Polyethylene (1955) • FREZALL (Spencer Dry Ice) • Cylinder Ammonia

SPENCER CHEMICAL COMPANY

General Offices, 617 Dwight Bldg., Kansas City, Mo. Works: Chicago, Ill., Pittsburg, Kan., Henderson, Ky., Vicksburg, Miss., and Orange, Texas (under construction).

(Advertisement)

CHEMICALS OUTLOOK

January 1955

This news bulletin about Wyandotte Chemicals services, products, and their applications, is published to help keep you posted. Perhaps you will want to route these and subsequent facts to interested members of your organization. Additional information and trial quantities of Wyandotte products are available upon request . . . may we serve you?

FOR THE RUBBER INDUSTRY— A TIME-PROVED, FIELD-TESTED, COATED ULTRAFINE CALCIUM CARBONATE

Wyandotte is now offering Purecal* SC to the rubber industry. It is a coated ultrafine calcium carbonate . . . backed by 8 years of research and development, plus 3 years of extensive field testing. Entirely different from any other coated calcium carbonate on the market, Purecal SC is designed specifically to overcome processing difficulties attending the use of uncoated carbonates.

Specifically, it imparts the same characteristics as uncoated ultrafine carbonates, but it can be dispersed without special handling. This shortens mixing time and lowers costs.

The unique organic coating on SC does not retard cures; consequently, when Purecal SC replaces neutral or retarding carbonates and clays, accelerator requirements may often be reduced 50% or more, with resultant savings. The coating does not impair the excellent aging characteristics of the ultrafine carbonate, nor does it affect color.

Also, coating does not lower modulus, reduce resilience, or increase the heat build-up. This permits much higher loadings. When more SC is used than the carbonate or clay it replaces, more end product, improved quality, and lower volume costs result.

Field results on commercial all-GR-S compounds which formerly contained ultrafine carbonates as one of the leading materials, showed marked improvements when Purecal SC was used. Data on this is available.

Your inquiry is invited. Please help us to help you by giving as much information as possible when writing about the process or problem with which you are concerned.

FOR CONCRETE USERS— A TIME-SAVING TIP

Adding Wyandotte Calcium Chloride makes concrete much easier to work and place, and results in a stronger, better job. This holds true for all concrete products. There are other customer benefits: high early strength, better workability, less breakage, curing period (and cold weather protection) cut in half.

Write us for full details and recommended amounts to add, together with proper procedures.

Also, for Calcium Chloride for any purpose, anywhere, you'll find Wyandotte a dependable source of supply. Address your inquiries direct to us.

*REG. U.S. PAT. OFF.

Wyandotte CHEMICALS

WYANDOTTE CHEMICALS CORPORATION
WYANDOTTE, MICHIGAN • OFFICES IN PRINCIPAL CITIES

SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA • CALCIUM CARBONATE • CALCIUM CHLORIDE • CHLORINE • MURIATIC ACID • HYDROGEN • DRY ICE
GLYCOLS • DDT • BHC • SYNTHETIC DETERGENTS (anionic and nonionic) • CARBOSE ® (Sodium CMC) • ETHYLENE DICHLORIDE • DICHLORODIMETHYLHYDANTOIN
CHLORINATED SOLVENTS • AGRICULTURAL CHEMICALS AND INSECTICIDES • *OTHER ORGANIC AND INORGANIC CHEMICALS*

between you and this page

. . . is roughly one cubic foot of NITROGEN gas. Floating free in the air this nitrogen can't add to America's agricultural or industrial wealth. But this week in Memphis, Tennessee, Grace Chemical Company is opening a plant that will "fix" atmospheric nitrogen in the form of two very versatile compounds — ammonia and urea. (Shown in the photo are prills—tiny beads—of urea containing the equivalent to the amount of nitrogen gas between you and this page.)

Fixed in this way, nitrogen can enrich our crop farms, our livestock, and our homes—through its use in fertilizers, feed supplements, and the manufacture of products ranging from toothpaste to television cabinets.

Output of the $20,000,000 Memphis plant will be 72,000 tons of nitrogen a year. It will provide industry and agriculture these two forms of nitrogen from a *dependable* source—backed by a world of experience.

For AMMONIA and UREA look to —

GRACE CHEMICAL COMPANY

HANOVER SQUARE, NEW YORK, N. Y. • ATLANTA, GA. • CHICAGO, ILL. • MEMPHIS, TENN.

What Can You Do to Pare Your

Plan more thoroughly before you start the project, say construction firms and contractors surveyed by CW. Here's their Construction Checklist . . .

When you build a new plant, do you . . .

- √ Plan in total concept before work starts?
- √ Coordinate engineering and production interests in design?
- √ Know your site and community obligations to neighbors?
- √ Confer with contractor or consultant on design?
- √ Discard overdesign, "gold plating," outmoded specifications?
- √ Refrain from making changes on the job after work starts?
- √ Provide authoritative liaison to work with construction leaders?
- √ Do your part to maintain work schedules?

If you answer no to any one of the questions above, chances are you'll spend more than your share of the chemical industry's $1.2-billion outlay for new plants this year; you'd be smart to review your entire policy on plant construction. That, at least, is the unanimous opinion of architect-engineers and builders queried by CW last week.

While none of the men surveyed wants to be placed in the position of telling a chemical company how to run its construction program, they all agree that there is room for improvement in the general relationships between contractor and client. They feel that better cost controls can be applied in two areas: the precontract planning stage and the actual plant construction. In the first, it's largely the customer's responsibility to organize a sound basic program. In the second, it's up to the contractor, but he has to have cooperation from his client.

Precipitant Planning: "Make haste slowly" might be a good motto for process planners to follow, the construction men feel. They single out premature starts on design and construction more often than any other item as a contributor to excessive costs. They point out that rushing plans to completion is wasteful of engineering effort and that starting construction too soon results in numerous field changes that offset any time advantages that may have been gained.

The best plan, say the contractors, is one in which the total concept is thoroughly understood before design begins. That means study, consultation and agreement between interested groups within the client's organization.

The early planning phase should include meetings with local community representatives, underwriters and the press. In this way, the pollution or noise abatement measures required for the protection of neighboring areas can be anticipated, will not crop up as expensive remedial emergencies later. One plant suffered from incomplete planning when it assumed that a neighbor's 36-in. gas line could be tapped for supply. Too late, it learned that a law prohibited tapping. It had to install a costly temporary propane system until permission to tap the line was received.

Once the basic plan is organized, the customer should follow through with a functional design. And in this phase, he would do well to confer with the contractor or an experienced consultant. While the customer's own engineers or designer are probably capable, consensus of those queried is that an outside opinion is often helpful in eliminating "gold plating" or obsolete pet gimmicks.

Second only to precipitancy is the extravagance of overdesign. Often this mispractice is well intended, done "in the interest of safety." But without coordination, it can be exaggerated far beyond this justification. Consider, for example, a plant designed for a floor load of 175 lbs./sq. ft. As the plans pass up the ladder for approval, the general manager may make it 200 lbs./sq. ft., "just to be on the safe side." If the vice-president and president each tack on another 25 lbs. for good measure, the floor factor ends up 75 lbs. over the engineer's original figure, which undoubtedly included a practical safety factor.

Probably the tendency to overdesign is due to the individual's belief that he will not be held accountable for a slightly more expensive item, but would bear the brunt of the responsibility for an insufficient design he had approved. But the error in this thinking overlooks the snowballing effect of making a unit "slightly" larger. The next size pump may be only a few dollars more than the plans call for. But the total bill for the larger motor, gear reducer, pipeline, electrical service, and switch gear it requires can be staggering.

Closing the Contract: The final phase before construction starts is getting the contractor. Assuming that any company would select the best available builder for the job, the builders feel the main cost consideration at this stage is the preparation of the contract. While conditions may require a fixed bid or cost-plus type of contract, consensus is that the guaranteed maximum

Costs on New Construction?

. . . but don't try to go too far. Leave some decisions for the man in the field, says Carborundum Metals' Niles Bartholomew.

How do experienced chemical production men feel about the suggestions of the builders? Niles (Bart) Bartholomew, vice-president and general manager of the Carborundum Metals Co. (Akron, N.Y.), goes along with most of them, adds a few of his own.

And Bartholomew is a man who knows whereof he speaks. An aeronautical engineer by education, he's an organizer and plant builder by training. Among the construction jobs he has supervised: an aircraft factory for Curtiss-Wright, a television glass works for Corning Glass and a zirconium plant (which he now runs). Many of these went up in record time.*

* Bartholomew's pet project, however, was the Curtiss-Wright aircraft plant in Louisville, Ky., built during World War II. It was in operation just 99 days after he got the first word on the plant.

• **Planning.** Bartholomew is in wholehearted agreement with the contractors that changes made after a plant is started are the major causes of construction delays and excessive costs. "Unfortunately," says he, "most projects are begun before they're conceived. And not knowing is a big stumbling block to doing."

At the same time, Bartholomew points out, you can carry planning too far. Says he: "You don't design right down to the 'gnat's eyebrow.' There's a point of diminishing returns in planning; you have to leave some elements of design for choice in the field."

Also, Bartholomew points out that the client can lay down a dictate on design—and get exactly what he asks for. But the odds are that he'll miss some good bets.

By the same token Bartholomew isn't a believer in compromise. As he puts it: "It's better to take one plan—either your own or the builders'—whole hog. Very often, a compromise merely brings out the worst of both."

• **Cooperation.** Bartholomew also agrees that it's essential to work closely with the construction leaders. So long as the contractor keeps to the schedule (which he himself has set before the start of the project), he should be left alone. When he falls behind, Bartholomew finds out why and then works with him in an effort to catch up.

Important, too, is being honest with them, giving credit, as well as blame, when due. One of his own proudest boasts is that he's never had any trouble with unions, with his associates or with those who work under him."

• **Choosing the Contractor.** When a bid is submitted to Bartholomew, he investigates the applicant's history, habits and reputation. And he doesn't necessarily grant the contract to the lowest bidder. For he feels that a poor contractor can cost a company money—even on a guaranteed maximum price contract.

• **Liaison.** A good way of keeping tabs on the contractor is by appointing a capable liaison man, generally a project engineer. Bartholomew feels he should have authority to make spot decisions and changes.

• **Consultants.** One suggestion that Bartholomew doesn't go along with is the use of consultants. Although he sees a need for them in certain specific instances, he thinks that they should be employed sparingly. His reasoning is that consultants don't have the final responsibility for making the plant work and without this responsibility he feels that even the best of them are apt to overlook some important details.

In the last analysis, however, Bartholomew thinks the big factor is cooperation between all parties concerned. For his own part, he credits the zeal of those he worked with as having accomplished some difficult tasks. Says he: "The Louisville job in particular couldn't have been accomplished by ordinary sane men without a strong motive."

---

price contract with division of savings between contractor and customer is, in general, the most advantageous for all concerned.

But regardless of which type of contract is used, it's essential that it clearly define the full scope of the work. Complete understanding of specifications to be furnished and performance required promote harmonious cooperation between customer and contractor, eliminates over-the-estimate expenditures for items omitted or not clearly defined.

Cut Changes: When the contractor's erection men go on the job, the overhead is a major cost factor. And construction men were almost unanimous in pointing out field changes in plans as the most serious cost abuse during this period. Admittedly, there is no ready solution of this problem in the chemical industry. Fast-changing, highly specialized plants and shifting market emphasis often make changes

custom-fitted liquid storage

Complete liquid storage systems individually tailored to suit your needs are available to all without capital investment! Individual pipelines, pumps and tanks, can handle as little as 10,000 or as much as 10,000,000 gallons—with complete privacy—permitting storage of chemicals, petrochemicals, petroleum products, food products and similar bulk liquids as required.

Our modern, expanding storage facilities at Perth Amboy and Woodbridge, New Jersey and at Houston, Texas are equipped to accommodate more than 400,000,000 gallons. We are at your disposal for emergency or regular storage and shipments . . . with complete tanker, barge, tank car, truck and drum facilities.

Our controlled handling of bulk liquids is based on unrivalled facilities, extensive experience and a service policy which keynotes the personal touch. You'll like doing business with Hess!

Full details on request.

HESS

HESS, INCORPORATED

HESS TERMINAL CORP.

You can depend on HESS!

necessary. But there are numerous trivial changes that could be avoided if the planning were properly organized and kept up to date before the job starts.

The second most serious cost raiser in the field is conflict between customer and contractor project leaders. To insure against such difficulties, say field men, the customer should assign one qualified liaison man to the project, work through the contractor's chain of command. The company representative should have the authority to make decisions, okay drawing revisions that often delay work for weeks in avoidable red-tape procedures. Also, the customer should make better use of the contractor's experience and ability. And with good liaison, these qualities can be expediently utilized to save time, cut costs.

Just as the contractor is expected to fulfill his contractual obligations, so should the customer adhere to the terms of the agreement. It would not be fair to require performance under restrictions not stated before work starts. If, for instance, existing facilities must be shut down to tie in the new construction, the company should time the shutdown to fit the building schedule.

Labor Angle: Neither the customer nor the contractor has complete control over cost influences in general and labor in particular—potentially the greatest single factor. Labor negotiations are primarily the contractor's responsibility, but the customer should help, without interfering, whenever possible. One thing that construction men feel companies must avoid is the setting of work schedules so short that extra crews must be employed and overtime is excessive. This practice

Math Shortcut Charted

RACING against the clock and each other, this group of Sun Oil engineers* is trying to determine how a new mathematical chart developed by the firm's E. J. George (*left*) stacks up against calculating machines and slide rules. In this particular test, the chart won hands down as George proved it gave the answer 50% faster than the slide rule, 100% faster than the calculator. George feels the new chart is better than a conventional nomograph in that the values can be read without the use of a straightedge. An added dividend: the operator has one hand free to record values. The charts can be used for multiplication, division, logarithms, and for finding square and cube roots. Accuracy is said to be equivalent to that of a 7½-in. slide rule.

* Seated (l. to r.): Inventor George, G. E. Cook, C. H. Brooks. Holding the stop watch is E. J. Nopper.

6

REASONS FOR INDUSTRIAL ODORANTS

1 Add sales appeal to a finished product.

2 Disguise chemical ingredients of special formulas.

3 Deodorize products used in manufacturing processes for workers' comfort.

4 Mask odors too costly to eliminate by chemical means.

5 Cover mal-odors to prevent a public nuisance.

6 Mask the unpleasant odors of cheap unrectified solvents.

If any part of your operation entails one of these, or related odor problems, the D&O Product Development Labs will work with you individually and provide specific technical assistance. An industrial deodorant or reodorant, available at reasonable cost, may be the answer to your need. Consult D&O.

Our 156th Year of Service

D&O

DODGE & OLCOTT, INC.

180 Varick Street • New York 14, N. Y.

SALES OFFICES IN PRINCIPAL CITIE

ESSENTIAL OILS
• AROMATIC CHEMICALS
• VANILLA • FLAVOR BASES
• PERFUME BASES

SHIP YOUR CHEMICALS
in Safe,
Low Cost, Attractive
HAMMOND
Multi-Wall
PAPER
BAGS
Betterbags
HAMMOND BAG & PAPER CO.
General Offices: Wellsburg, W. Va.
Plants in Wellsburg, W. Va.
Pine Bluff, Ark. • Charlotte, N. C.

You gotta be
first...

to be best!*
*25 years ago, Alloy Fabricators started to build Stainless Steel, Monel, Inconel, Nickel and Aluminum Process Equipment. With this experience, naturally, they're your best bet today!
It's Still Our Only Business
— And We Mind It Well!
ALLOY
FABRICATORS
DIVISION OF CONTINENTAL COPPER AND STEEL INDUSTRIES, INC.
PERTH AMBOY, NEW JERSEY

sets a pattern that drives labor rates up, makes it necessary for the next company to pay the higher going rate.

Of course, it isn't entirely up to the customer to keep costs down. It's equally important for the contractor to follow his own advice, take the same care in his preparation of the work, assignment of capable personnel and adherence to the schedule. If both parties do their part the cooperative effort should go a long way toward cutting excessive construction costs.

PROCESSES . . . .

Pulp Push: Along with its search for hydrogen peroxide outlets in the epoxy field (*CW, Dec. 25, '54, p. 32*) the Becco Division of Food Machinery & Chemical Corp. is currently probing the Southern pine kraft industry for additional peroxide applications. At the Pulp & Paper Conference last month at the University of Florida, two of the company's research and development men presented a paper on "Peroxide Bleaching of Southern Pulps," explaining briefly three new pulp processes based on peroxide:

- The first process, last-stage tower bleaching, centers on the application of hydrogen peroxide bleaching in a final stage following a hypo stage. For best yield, brightness, and stability, this stage, says the company, should be preceded by a hypochlorite stage.
- For superbleaching or prevention of brightness reversion, the company offers its pulp dryer steep bleach process. The hydrogen peroxide, in somewhat diluted form, is applied following the wet process in conjunction with pH-controlling alkalies, such as phosphates.
- The two-stage hypochlorite-hydrogen peroxide process, while not recommended for Southern kraft pulps, is suitable for increasing (or "saving") yields on sulfites, semichemical pulps, and fibrous agricultural residues. As a preliminary preparation for a subsequent hydrogen peroxide stage, the batch is passed through a low-density first-stage hypochlorite having a lower-than-normal starting pH.

•

Sheet Mica: The Integrated Mica Corp. (Woodmere, N.Y.) reports a new process of manufacturing paper-thick sheets of mica for electrical insulation applications. Essentially, the process consists of splitting the mica with high velocity water jets in a battery of disintegrators, forming the resulting flakes into sheets held together by cohesion. It is claimed that thicknesses, ranging from that of tissue paper up to ⅛ in., are easily controlled without the use of calender rolls required for conventional papermaking. The Compagnie Generale Belges des Isolants is constructing a plant near Brussels, Belgium, to produce integrated mica by this method.

•

Sugar Swap: From the Hawaiian island of Maui comes word of a new application for electrolytic ion exchange: desalting cane juices before they are refined into sugar. Developed at the laboratories of Ionics, Inc. (Cambridge, Mass.), the process involves removal of salt by transfer through an ion exchange membrane with the aid of an electric current. Partial removal of salts, such as potassium chloride, it is said, is economically attractive to refiners because it permits increased recovery of sugar.

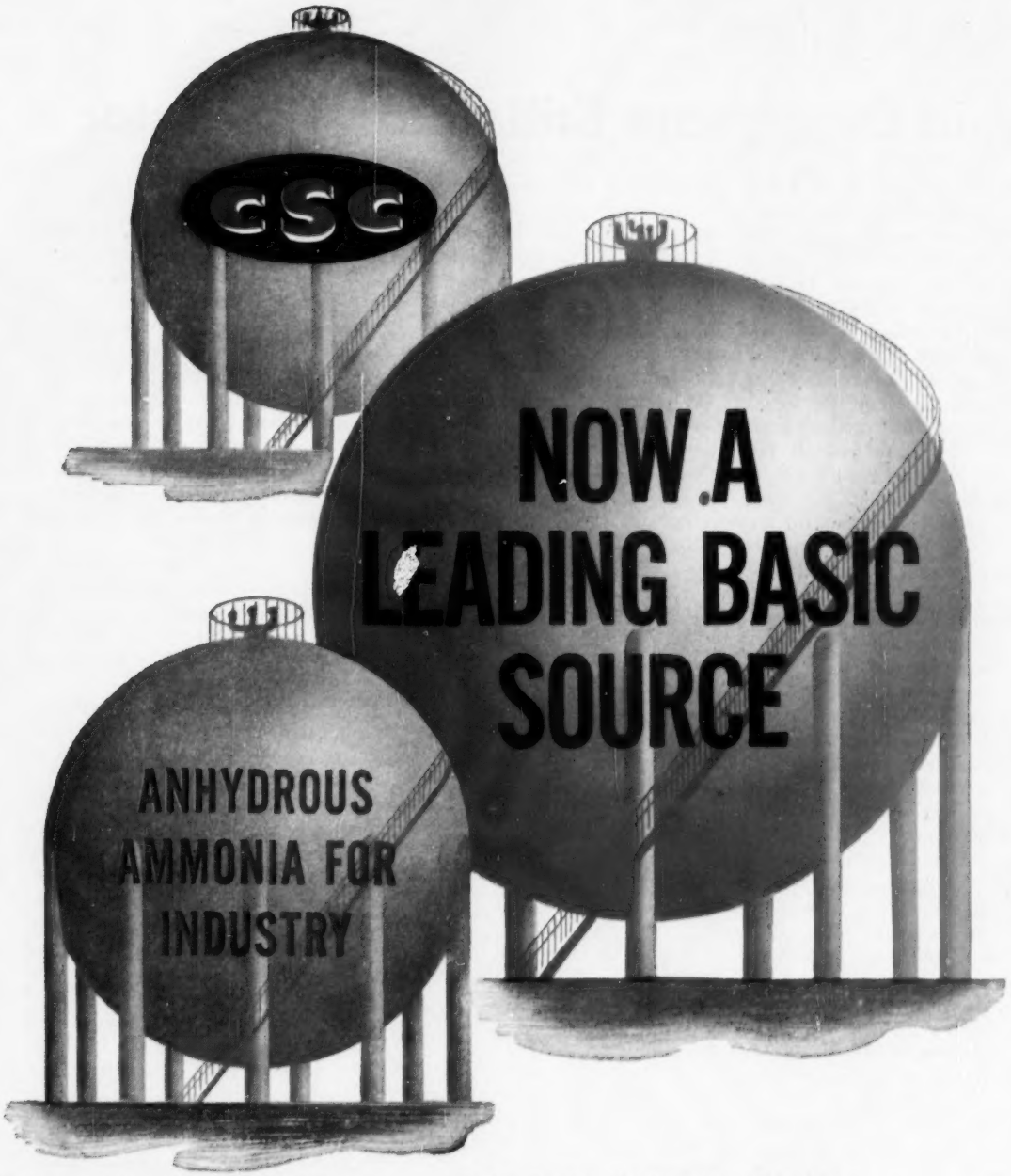
The process will undergo production tests at a pilot plant soon to be built at the Puunene factory of the Hawaiian Commercial & Sugar Co. This method of desalting sugar is essentially the same as Ionics' method of purifying salt water (*CW, June 12, '54, p. 38 et priori*).

EQUIPMENT . . . .

Double Dispersion: Interfacial contact between gas, liquid and catalyst in pilot-plant and laboratory high-pressure autoclaves is greatly increased, claims Autoclave Engineers, Inc. (Erie, Pa.), by the use of its new Dispersimax agitator. Double-action mixing is provided by a hollow rotary shaft, which draws in gas from above the liquid, expels it below the surface in rapidly circulating bubbles.

•

Rugged Couples: The combination of magnesium oxide insulation and seamless metal tube cladding, says Thermo Electric Co., Inc. (Rochelle Park, N.J.), enables its new Ceramo thermocouple and extension wires to withstand higher temperatures than previous standard insulation permitted. Ceramo is available in single or multiconductor cables, in all common couples, clad with various types of metal tubing.



With the completion of the $20,000,000 expansion program at Sterlington, La., CSC is producing anhydrous ammonia at double its former capacity. It establishes CSC as a leading, basic source of ammonia for the chemical industries and assures you of a dependable source of supply of anhydrous ammonia on a year-round basis.

Versatile as a raw material and in processing operations, CSC anhydrous ammonia, technical and refrigeration grades, is being used in the fields of Resins, Textiles, Metals, Rubber, Explosives, Petroleum, Refrigeration, Dyes, Water Purification, Fermentation and as an ideal Neutralizing Agent.

CSC Anhydrous Liquid Ammonia is available in tank cars containing approximately 52,000 pounds of ammonia. Write, wire or phone us today for latest Technical Data Sheet and 48-page Ammonia Bulletin. Industrial Chemicals Sales Department, Commercial Solvents Corporation, 260 Madison Avenue, New York 16, N. Y.

COMMERCIAL SOLVENTS

260 MADISON AVENUE NEW YORK, N. Y.

CSC INDUSTRIAL CHEMICALS

Liquid Detergents: Still on an Escalator

There's no stopping the surge in popularity of liquid synthetic detergents. As the last page turned up on '54's calendar pad, the years' production had reached an estimated 115-120 million lbs. (valued at about $50 million)—roughly a 20% gain over '53. This continuing rise in liquid syndet output,* however, has proved to be about the only aspect of the liquid detergent business that proceeds with predictability. In '54, for example, the product that had long been the best-seller was edged from its top spot. And glass bottles, long standard for liquid syndet packaging, were teetering in their position as favored containers.

Headliner: Perhaps the No. 1 news item in the liquid dishwasher world has been the success of Lever's Liquid Lux. Introduced in the spring of 1953 (*CW, March 25, '53, p. 60*), LL has, in less than two years, surpassed the sales of P&G's well-established Joy, according to industry word. Together, these two products tower over competition in most markets.

Not to be counted out, however, is B. T. Babbitt's Glim, withdrawn from full national distribution, and marketed now only in selected areas. Glim has showed a "substantial percentage gain" in the past year, and it will receive a bang-up promotional campaign in '55.

Metal Overcoat: The success of Liquid Lux adds up to more than a victory for Lever's revamped sales organization. It is a score for the proponents of metal packaging of liquid syndets, an idea that Lever pioneered. Already, White King, a detergent made by Los Angeles Soap Co., Inc., and sold in 11 Western states is put out in a similar unit, and word is that Glim will go after bigger sales this year in a flashy metal overcoat.

Colgate may be canning its suds-maker, too, if and when it sells one this year. It is "actively testing" both bottle and can packaging.

All this indicates a boom in metal containers. It means sure competition for American Can Co., now producing the cans for Lux and White King.

Continental Can Co., although declining to give out details on its newest baby, admits that a 12-oz. Raymond Loewy-designed unit of its manufacture will be used in the big Glim push this year.

A pair of other big can makers, Crown Cork and Seal's Crown Can Div., and Pacific Can Co. have not yet shown off a detergent can, but own up to plenty of interest in the idea.

DISH CLEANUP: $50 million worth of liquid detergents make the job easier.

Liner Poser: It has been no easy trick to produce a satisfactory container for the syndets, American Can (Canco) will be the first to admit. Liquid Lux originally hit the market in black plate container, with a two-coat organic liner. The nozzle of the can was aluminum, featured a "no-drip" lip. Then for a time (last year) corrosion forced Canco to make its container out of tinplate. Now Liquid Lux is once more in black plate cans, with cemented-seam (rather than soldered) construction. The can shoulder is enameled tinplate. The base of the can has been aluminum protected, so that setting the can on a wet sink won't cause the bottom to rust.

Sudsers, All: The solid success of the liquids hasn't been a clear-cut triumph for any one type of synthetic detergent. All the liquids are high foamers, but Joy, as an example, is a fatty alcohol sulfate, while Lux is an alkyl aryl sulfonate.

It is a good guess that most of the private-brand products currently on the market are also of the alkyl aryl sulfonate type, too. In recent months, the portion of the market taken by the private-label syndets has been small —perhaps 10% of the total. The whole picture is changeable enough, however, to encourage some firms to try their hands at marketing some—a recent example is Linco Product's Winko, now test-selling in Chicago (*CW, Nov. 27, '54, p. 64*).

(On the other hand, Fels is still hesitant about bucking the "Big Three" nationally with its Rol, which has been test-marketed for years.)

It seems safe to say that the giant advertising budgets of the major soapers play the key role in the success of the liquids. A small firm can (and several do) have topnotch liquid products made for its own label in much the same way that Lever has turned to Fluid Chemical Co. (Newark, N. J.) and Stepan Chemical Co. (Chicago) for the manufacture and packaging of its Liquid Lux. Colgate is in a position to manufacture its own liquid syndets, and P&G has always produced Joy.

In many cases, the private-label merchandiser has sought to undercut the prices of the big-name producers. Sometimes, this has been done by simply reducing the profit margin, but in other cases it has been done by providing a product with a lower percentage of active ingredient. Some feel that the more dilute product is actually a better approach to the problems of making and selling liquid detergents.

But all in all, housewives seem pleased with liquid detergents. There is every reason to think that this year, with its hard-hitting sales campaigns already slated, will bring a continued lift to syndet production.

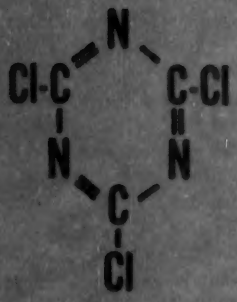
* '53 showed a 70% production increase over '52; '52 a 30% increase, '51 a 70% increase, for example. These are figures based on the Assn. of American Soap and Glycerine Producers' Soap Census. It is estimated that at least 85% of the liquid syndets are used in the home, rather than by industry.

Cyanamid's new plant facilities mean a large domestic source of pure

Cyanuric Chloride

at a new low price

Cyanamid has just completed new plant facilities which will insure you a large, steady supply of pure domestic Cyanuric Chloride. The high activity and reactivity of Cyanuric Chloride, with its stable triazine ring, find important application in the manufacture of:



- Dyestuffs
- Explosives
- Insecticides
- Mothproofing Compounds
- Optical Bleaches
- Pharmaceuticals
- Plasticizing Agents
- Resins and Plastics
- Rubber Chemicals
- Salt Bath Rectifier
- Surface Active Agents
- Tanning Agents

We invite you to consider this versatile chemical intermediate in terms of your own operations. Contact your Cyanamid Representative or send us the attached coupon for a laboratory sample and our two technical bulletins on Cyanuric Chloride.

chemicals for the chemical industry

AMERICAN Cyanamid COMPANY

Manufacturers Chemicals Department
30 Rockefeller Plaza, New York 20, N. Y.

Gentlemen:

Please send me:
- ☐ "Chemistry of Cyanuric Chloride"
- ☐ "Cyanuric Chloride Derivatives"
- ☐ Laboratory Sample
- ☐ Have Technical Representative Call

Name _____ Position _____

Company _____

Address _____

City _____ Zone _____ State _____

In Canada: North American Cyanamid Limited, Toronto and Montreal

PEABODY AND BUTCHER: For a novel sales booster, a walk-on poster.

Strictly in the Family

Talent in the family shouldn't be ignored. That's the lesson learned by The Butcher Polish Co. (Malden, Mass.) in the past five years.

An old firm with a conservative background, it seemed to be just waiting for someone like Charles Butcher 2nd to come along. Since 1950 he's been responsible for such successful merchandising moves as:

- Boosting the ad budget to $100,000 yearly. When he joined the firm, it was spending only $350.
- Devising novel, hard-hitting posters that go on store floors. They're covered by transparent plastic and held down by special tape (*see cut*).

In addition, this spring he will:

- Start construction of a building that will give the firm 50% more floor space.*
- Launch "a new and different" selling program.

From Floors to Waxes: In order to understand what a whirlwind he has been, it's best to take a quick glimpse at the history of the New England firm. It lays claim to being "the maker of the first floor wax in America." It began in Cambridge, Mass., in the late 1870s, was incorporated in 1883.

Founder was Charles Butcher who got into the floor-laying business at the time hardwood and parquet floors were replacing the older softwood types. In those days, most polishing was done by carpenters and cabinet makers. Packaged wax simply didn't exist. Householders wanting to do polishing on their own had to employ boiled linseed oil or some other mixture.

Because Butcher had an inventive nature (he held a number of patents, including one on a disappearing hitching post for horses), he came up with a wax that could be used by customers buying his floors. Since then the firm has developed a dozen additional waxes for both home and industrial use. It no longer makes floors.

Reliable, But . . . Until Charles Butcher 2nd joined the company, however, it was known mainly for the reliability of its products, and not for spectacular sales. While such a reputation was commendable, it didn't make the firm strong financially.

It needed someone with smart merchandising ideas, and it was just this need that lured Charles into the family business. A graduate of Harvard (class of '39), he held off joining the company because he felt that, as the boss's son, he had no yardstick for measuring his own ability. So he went into advertising in Boston, specializing in creating and selling advertising programs.

By 1950, he had decided it was time to take a second look at the business the two other Charles Butchers had built up. He was hired by his father on a part-time basis on the strength of a program he had designed for upping sales. Soon he was working full time and had become the firm's executive vice-president.

One of his most profitable ventures has been the poster idea. Its success didn't rest on posters alone, however. The product featured is Green Stripe Washable Wax—a water dispersion of carnauba wax and morpholine, which the company had sold for years for industrial floors as a "waterproof" wax.

Benign Complaints: The product was so durable, many Butcher's customers complained, that they worried about getting it off. As a result, the firm had to provide customers with a booklet on floor care, in which they advised users to stop worrying, and to wash and rebuff the wax.

Young Butcher and sales head Malcolm Peabody tried a new approach. They simply changed the name from "waterproof" wax to "washable," and plugged how one coat "lasts two months," and how it "will not waterspot." The plan has worked well.

So far, according to Butcher, no other wax maker has taken up the practice of using floor space for ads. Because the posters are especially durable, Butcher salesmen tell store staffs: "This will stay on the floor for weeks—just like the wax it's selling." (Retail outlets for the company's products are mostly hardware, paint, variety, stores.)

While Butcher prefers not to spell out his spring merchandising campaign, he's confident it will go over. He's combined an interest in a family business with a real zest for selling, and it has brought new life to Butcher Polish.

•

Hard at Heat: A new curing agent for epoxy resins, which is claimed to permit castings, laminates, adhesives and the like to retain their physical properties up to 150 C. has been developed by Aries Laboratories, Inc. (New York). Called Curing Agent 105, the hardener is said to insure long pot life, and to raise resin temperature little during curing (which permits curing of thick sections without cracking).

•

Growing Room: Kurfees Paint Co. has acquired a building adjoining its Louisville, Ky., plant for $95,000.

* Mainly because of his ideas, company sales have risen each year at least 25%. Today, they are probably over $1 million.

GOING GRANULAR?

switch to KRAFT-lok® bags!

89.6% of our customers who used L. C. Sleeves and other internal sleeve type bags have switched to KRAFT-lok — without any increase in cost.
The integral construction of this exclusive Kraft Bag feature solves all those tricky closure problems peculiar to bagging granular material.
KRAFT-lok also gives you the extra extensible, flexible protection, and the extra protection you simply cannot get in conventional type valve bags.
For demonstration without obligation . . . fill out coupon below, attach to your Company letterhead and send to us at once:
NAME
TITLE
COMPANY
ADDRESS
CITY
10 good reasons
why packers of granulated fertilizer prefer KRAFT-lok Bags:
1 Eliminates snagging on packer tubes.
2 More flexible valve area improves bag handling.
3 Prevents torn sleeve particles from contaminating material.
4 Speeds up filling operations by more efficient "venting."
5 Slows up spilling in filling.
6 Reduces leakage in closing.
7 Actually seals material inside bag automatically.
8 Minimizes sifting in handling.
9 Makes a cleaner, more satisfactory package in all ways.
10 Saves dollars all around.
* 89.6% have already switched!
Gilman PAPER CO.
• St. Marys Kraft Corp.
• Gummed Tape Div.
• The Celluseal Corp.
• Kraft Bag Corp.

KRAFT BAG CORPORATION

Gilman Paper Company Subsidiary

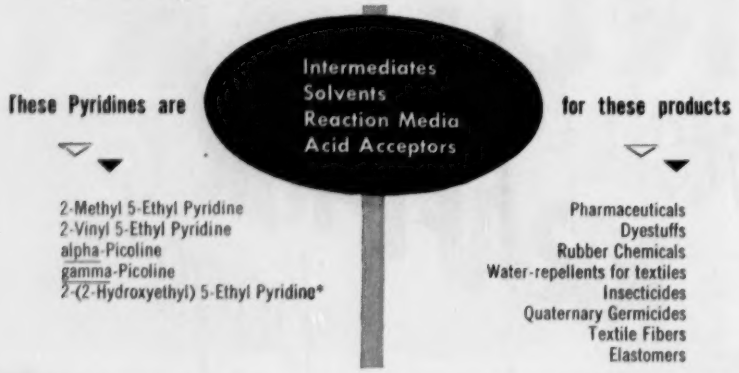
630 Fifth Avenue, New York 20, N. Y. • Daily News Bldg., Chicago 6, Ill.

1 Responsibility
2 Integrated Plants
3 Generations of Bag Experience

For Uniform High Quality from direct Syntheses—

CARBIDE'S SYNTHETIC PYRIDINES

Direct syntheses for each of these pyridines assure you of high purity and uniformity. In addition, our direct syntheses mean that variations in demand for one of the pyridines will not affect the availability of the others.



For further information, call or write the CARBIDE office near you.

*Available in sample quantities only.

CARBIDE AND CARBON CHEMICALS COMPANY
A Division of Union Carbide and Carbon Corporation
30 East 42nd St., New York 17, N.Y. UCC Offices in Principal Cities
In Canada: Union Carbide Canada Limited, Toronto

SODIUM BICARBONATE, U.S.P.

Specialized Grain Sizes

•

MONOHYDRATE of SODA

•

SAL SODA

•

Technical Service

CHURCH & DWIGHT CO., Inc.

70 Pine Street New York 5, N.Y.
Phone Digby 4-2181

SPECIALTIES . . . .

plans to put another $165,000 into remodeling the property for paint production.

•

No Carbon: Competitor for National Cash Register's NCR paper is a new product of Pengad Companies (Bayonne, N. J.).

Pengad has, in Autoscript, a special paper that can be used with any ordinary top sheet to make copies of typed or handwritten work. The Pengad paper, offered in several colors, is wax coated, with a layer of opaque white powder on the wax. Marks on the top sheet leave impressions, in the color of the base paper, that contrast with the white powder.

•

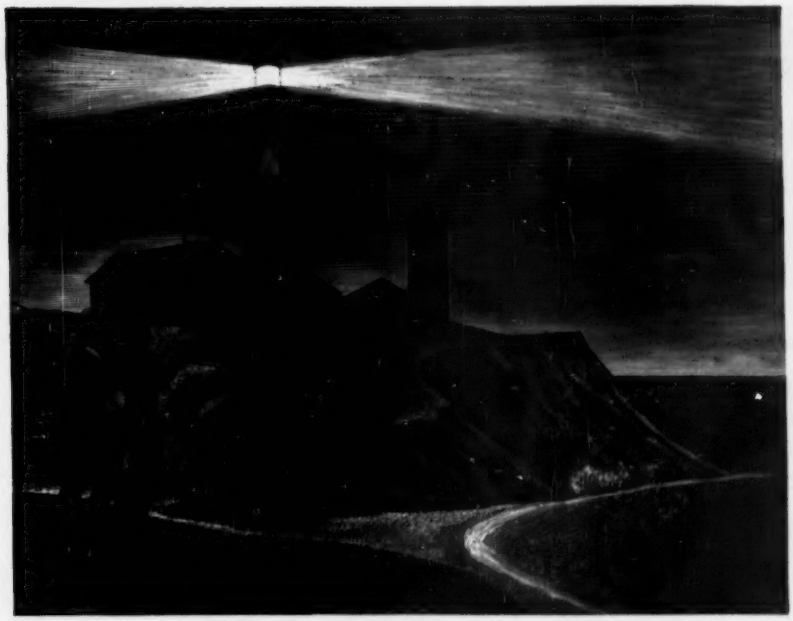
Addition: Miles Laboratories (Elkhart, Ind.) has purchased the drugmaking firm, Ernst Bischoff Co.

Interior Decorations

ONE POSTHOLIDAY way to use Christmas tree ornaments has been discovered by Boeing Aircraft's Oree Weller (*above*). Weller uses the baubles as "filler" in plastic foam materials that are employed as stiffeners in some aircraft components.

The ornaments (about $2 gross wholesale) are "desilvered" in a nitric acid bath, then placed in the selected cavity. Liquid foam plastic is poured in; it swells and hardens. The ornaments lighten the structure, are simpler to use than aluminum balls or paper tetrahedrons, which have been tried before.

FAMOUS LIGHTHOUSES OF AMERICA



MONTAUK POINT LIGHTHOUSE, completed in 1797, was one of the first to be constructed by the Federal Government following organization of the Lighthouse Service in 1789. Standing on a high headland of rocks and sand dunes, it marks the southern entrance to Block Island Sound as well as the eastern extremity of Long Island—an area of great danger to ships because of violent storms and the prevalence of fog.

Safe passage through many channels of production has been provided to thousands of users of electrochemicals by the skillful cooperation of Niagara Alkali Company. Niagara is a pioneer in the development, production and application of these important chemicals:
Nialk® Liquid Chlorine, Nialk Caustic Potash, Nialk Carbonate of Potash, Nialk Paradichlorobenzene, Nialk Caustic Soda, Nialk TRICHLORethylene, Niagathal® (Tetrachloro Phthalic Anhydride).

NIAGARA ALKALI COMPANY
60 East 42nd Street, New York 17, N. Y.

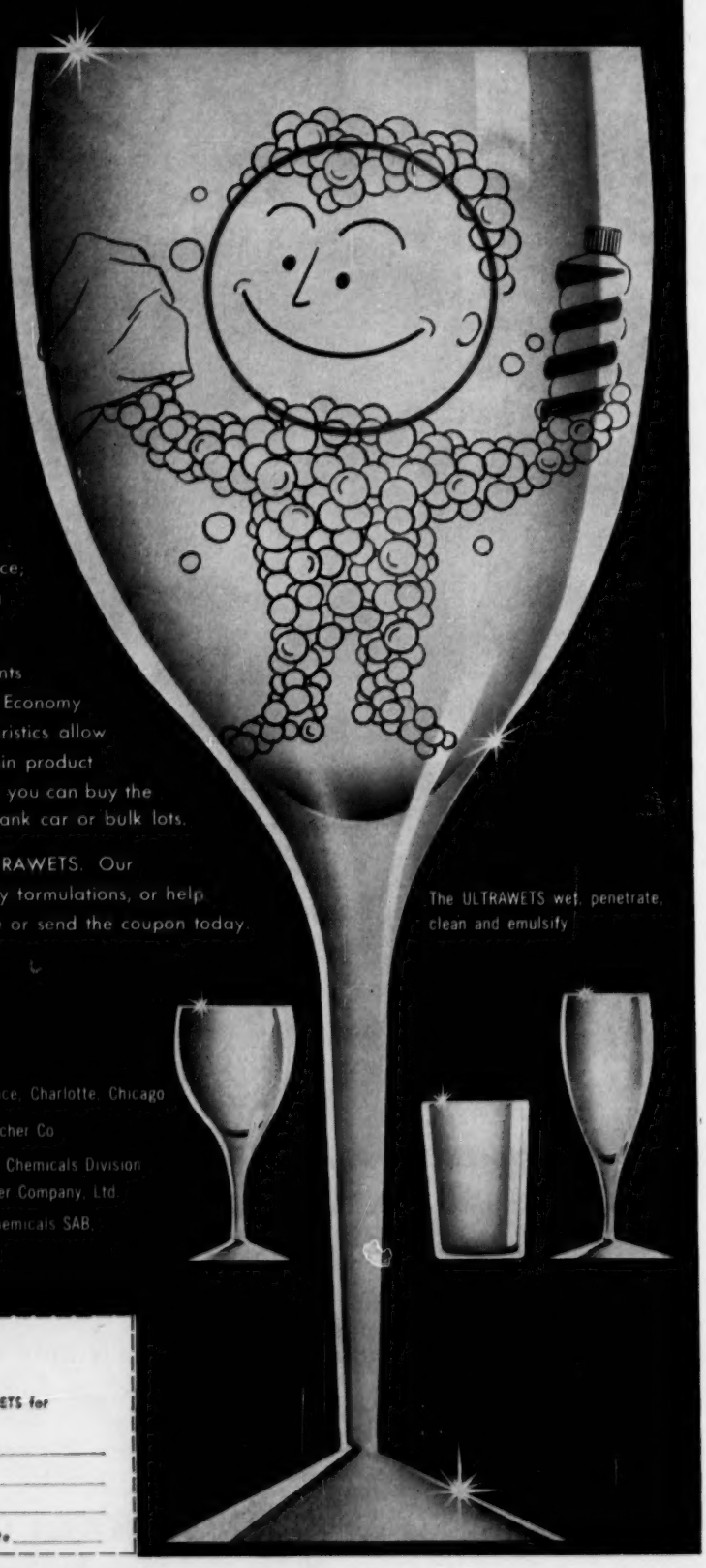
Suds. Shines and SELLS.

The growing preference for liquid detergent formulations is showing up in the sales picture . . . last year there was a phenomenal 90% industry-wide increase in these sales.

And no wonder . . . liquid detergent formulations offer real economy; instant solubility in any water; a pleasing fragrance; sneeze-free washing; dishes that dry shining bright; no sink scum to scrub away.

Many of today's best-selling liquid detergents are formulated with Atlantic ULTRAWETS. Economy is one reason. High performance characteristics allow a saving on the quantity needed to maintain product efficiency. Add to this saving a further one: you can buy the ULTRAWETS at significantly low prices in tank car or bulk lots.

Ask us for detailed information on the ULTRAWETS. Our Chemical Products Sales Division can supply formulations, or help you develop your own. Write, wire, phone or send the coupon today.



The ULTRAWETS wet, penetrate, clean and emulsify

ATLANTIC PETROLEUM CHEMICALS

Philadelphia, Providence, Charlotte, Chicago

In the West: L. H. Butcher Co.

In Canada: Naugatuck Chemicals Division of Dominion Rubber Company, Ltd.

In Europe: Atlantic Chemicals SAB, Antwerp, Belgium

THE ATLANTIC REFINING COMPANY
Dept. " " Chemical Products Sales
260 South Broad Street, Philadelphia 1, Pa.

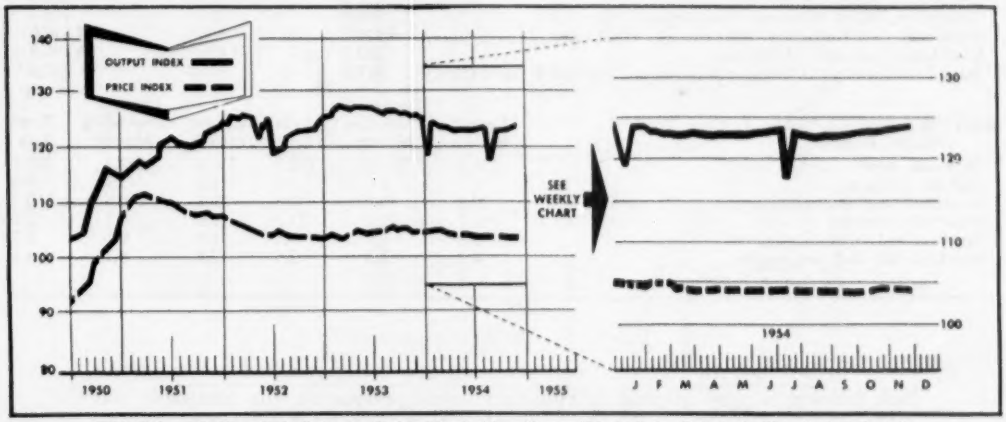
Please send me information on the ULTRAWETS for liquid detergent formulations.

Name _____

Firm _____

Street _____

City _____ Zone _____ State _____



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Domestic coke-oven benzol is cheaper—by 4¢/gal.—this week. The price-altering, initiated by a major steel maker, comes as no particular surprise *(CW Market Letter, Jan. 1)*. The move is vexatious, however, to other benzol sellers who had hoped to weather the current market unsettling engendered by the influx of low-cost foreign material.

A few such marketers had based their hold-the-line attitude on the belief that most of the imported benzol—arriving as crude and being refined here to sell at 35¢/gal.—was being sold (and will be in '55) to one Midwest styrene producer. Some 12 million gal. are reported to have been offered at Houston, Tex., last month, at the under-domestic tag.

The new 36¢ coke-oven price wipes out the 4¢ increase effected in early '53, but contract-bound petro-benzene consumers aren't likely to get a similar price break. (Some did last year during the soft-market period, when two top makers of the petroleum-derived material voluntarily reduced contract quotes.) Sharper competition expected during the upcoming months will probably have sellers insisting that all contracted-for benzene be taken—and at full price.

•

On the other hand, Du Pont early this week cut prices on two types of neoprene. A 5% reduction, effective Jan. 3, brings the price (for both W and WHV) down from 41¢/lb. to a 39¢-level.

Output of the synthetic rubbers has increased some 2½-fold over the past 12 months. And there's more neoprene capacity abuilding at Montague, Mich., but the $15-million installation isn't due in until next year.

•

Du Pont, too, is shaving its adipic acid tags. Consumers can now buy on a delivered basis at 35¢/lb. (car- and truckloads)—down approximately 3¢/lb. from the previous f.o.b.-figured price.

The move is deftly timed; may well be calculated to keep customers from straying. Significantly, National Aniline is poised for full-scale adipic production; Monsanto is already turning out marketable quantities *(see p. 55)*.

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.3	126.0	120.0
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.4	104.4	105.1
Bituminous Coal Production (daily average, 1,000 tons)	1,525.0	1,500.0	1,515.0
Steel Ingot Production (1,000 tons)	1,943.0 (est.)	1,850.0 (act.)	1,798.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	376.9	375.0	267.6

MONTHLY INDICATORS—Foreign Trade (Million Dollars)	Exports Latest Month	Exports Preceding Month	Exports Year Ago	Imports Latest Month	Imports Preceding Month	Imports Year Ago
Chemicals, total	$93.0	$81.6	$70.5	$16.9	$20.7	$22.0
Coal tar products	6.7	6.0	4.5	2.5	3.3	3.0
Medicinals and pharmaceuticals	24.5	19.9	19.5	0.3	0.5	0.5
Industrial chemicals	12.3	12.0	11.3	5.0	5.5	5.5
Fertilizer and fertilizer materials	6.8	6.9	4.7	6.8	9.1	9.5
Vegetable Oils and fats, inedible	6.7	2.0	2.5	7.8	6.1	4.4

But not all chemical commodities are being marked down—some inch toward higher ground. Major fatty acid producers, for instance, are posting new price lists showing hikes on both animal fat- and vegetable oil-derived acids. It's a third-in-three-months advance in these products, tallying to about a 10% increase.

Labeled as the prime price-change factor: more expensive raw materials. Tallow, for one, has been upped more than 1½¢/lb. over the past several weeks.

The new increases, which are effective as of Monday this week, boost oleic and stearic acids, ½¢/lb.; soybean oil acids, 1¢; double-distilled coconut types, ½¢/lb.

•

Production capacity and distribution data are targets of the Business & Defense Services Administration's survey of key chemicals. Within the next couple of weeks or so, the agency will send out Budget Bureau-approved questionnaires *(CW, Nov. 20, '54, p. 104)*, which will probe the vital statistics on calcium carbide and acetylene made from sources other than carbide.

Meanwhile, Budget is studying capacity and end use pattern forms drawn up by BDSA for a study of the phosphorus industry; and the latter is readying, for submission to the Budget Bureau, a similar question list on helium.

•

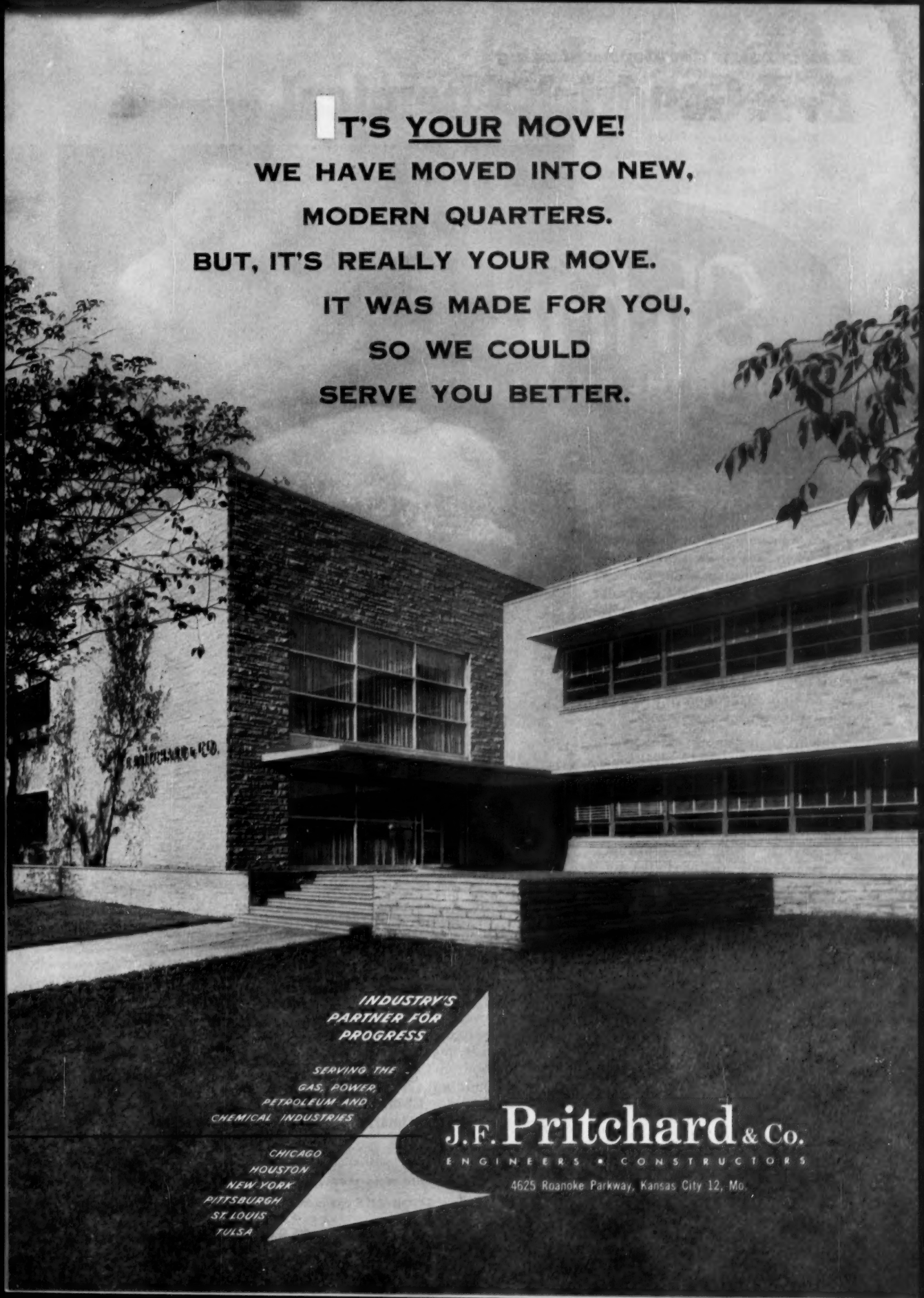
Lending emphasis to the current stint in salt cake *(CW, Dec. 25, '54, p. 55)*, the Saskatchewan government has revealed that it is reopening and expanding two sodium sulfate plants that have been out of production since '51. The stepped-up output, though heavy with freight charges, will lend comfort to pinched U.S. consumers.

Bulk of the imports into this country come from Canada; and during 1951, the last year the reopening facilities turned out the sulfate, some 81,463 short tons—of which 77,559 tons were crude salt cake—were purchased by U.S. users.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending January 3, 1953

	Change	New Price		Change	New Price
UP					
Nickel acetate, bbls., dlvd.	$ .02	$ .775	Oleic acid, single distil., tanks	.005	.115
Nickel chloride, bbls., dlvd.	.015	.385	Stearic Acid, single pressed, bgs.	.005	.1375
DOWN					
Adipic acid, fib, dms., works	$ .03	$ .35	Benzol, pure, nitration, Sparrows Point, Md., gal.	.04	.36
Anthraquinone, sublimed, bbls., frt. alld., c.l.	.05	.83	Neoprene (W and WHV)	.02	.39

All prices per pound unless quantity is stated.


IT'S YOUR MOVE!
WE HAVE MOVED INTO NEW,
MODERN QUARTERS.
BUT, IT'S REALLY YOUR MOVE.
IT WAS MADE FOR YOU,
SO WE COULD
SERVE YOU BETTER.
INDUSTRY'S
PARTNER FOR
PROGRESS
SERVING THE
GAS, POWER,
PETROLEUM AND
CHEMICAL INDUSTRIES
CHICAGO
HOUSTON
NEW YORK
PITTSBURGH
ST. LOUIS
TULSA
J.F. Pritchard & Co.
ENGINEERS • CONSTRUCTORS
4625 Roanoke Parkway, Kansas City 12, Mo.

Another new development using

B. F. Goodrich Chemical *raw materials*

Sh-h-h!

THIS IS THE SILENT RIG

OIL is where you find it—even when it turns up on the lot of the 20th Century-Fox Film studios near Beverly Hills. An oil rig isn't the quietest thing in the world—and that's where Geon polyvinyl material comes into the picture! For you can't shoot movies with the clamor of an oil well drilling rig as background—not to mention complaints of noise from nearby residents.

The ingenious solution is the "silent rig" shown covered with fibrous glass coated with a Geon-based plastisol. The heavy insulation cuts the noise of the drilling equipment down to a whisper. The covering is colored to blend into the California sky. A plastisol coating based on Geon paste resin was chosen because it resists weather, flame and is oil-and-greaseproof. Wearing qualities are outstanding.

This unusual example of Geon materials' uses may give you an idea. If you have a problem that requires a material with a wide range of advantages that makes products saleable—think of Geon. Versatile Geon is used in thousands of products, from rustproof, rigid piping to permanent window screening, sponge and top quality electrical insulation.

B. F. Goodrich Chemical Company does not make this drilling rig cover. We supply only the Geon paste resin for the coating.

We'll help you select the Geon material best suited to your requirements. For information, please write Dept. K-1, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

GEON RESINS • GOOD-RITE PLASTICIZERS . . . the ideal team to make products easier, better and more saleable.

GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON color

ADIPIC MARKET, spun by nylon, opens wider for newer uses.

Dividing Up Adipic

Most chemical marketers, by now, have assessed the effect of Chemstrand's proposed 8-million-lb. increase of nylon 66 capacity on the future use of adipic acid and hexamethylene diamine.* When production has attained the new full-capacity rate of 58 million lbs./year (up from 50 million lbs.) the raw material scales will be tipped for another 5.2 million lbs. of adipic acid and about 4.1 million lbs. of hexamethylene diamine.

Underpinning this capacity boost of nylon are certain machine modifications under way at the Pensacola, Fla., 2000-acre plant, which have this objective: increased output of heavier yarn deniers. These grades are in ascendant demand for mechanical and industrial usage.

The latest expansion of nylon output potential shoulders U.S. nylon 66 capacity today close to the 210-million-lb. ledge. Kingpin in the field is, of course, Du Pont with an estimated capacity of 150 million lbs./year. Total U.S. nylon demand for adipic acid, then, would be in excess of 136 million lbs.; for hexamethylene diamine, more than 110 million lbs. Actually, the over-all demand (exclusive of processing losses) for adipic acid by nylon makers is greater, also, by that amount consumed in the production of hexamethylene diamine.**

Under One Roof: Chemstrand's Pensacola, Fla., nylon plant, which will soon be completed after three years abuilding by the Du Pont Engineering Corp.,† actually delivered its first trickle of filament yarn a little over a year ago. This facility, hailed as the first wholly integrated nylon manufacturing plant in the U.S., balances its supply and demand for adipic acid and hexamethylene diamine at the one Florida site. Reason: it produces both raw materials at Pensacola from cyclohexane shipped from Texas.

Du Pont, on the other hand, has to reach out farther for its supplies. It makes needed adipic acid from benzene and cyclohexane at Orange, Tex., and at Belle, W. Va., and also turns out hexamethylene diamine from adiponitrile at both locations.** The nylon salt (hexamethylene diammonium adipate) is made up or "struck" at the spinning plants at Seaford, Del., Chattanooga, Tenn., and Martinsville, Va. (However, adiponitrile for molded plastics at Parkersburg, W. Va., comes from Du Pont's plant at Niagara Falls, N. Y.)

Du Pont—and Chemstrand since last year—has pre-empted in excess of 95% of the annual national output of adipic acid. This year, however, adipic-starved makers of polyesters and adipates will line up for adipic acid from National Aniline's new plant at Hopewell, Va. (*CW, Oct. 23, '54, p. 95*).

Chances are that National's sister division—Barrett—will also dip into the former's adipic supply for adipate plasticizer production. That's understandable because of the long experience that Barrett has had in producing phthalic anhydride plasticizers.

The variety of adipates consumed for plasticizers has been widening steadily during recent years. In 1953 alone the Tariff Commission reports the production of at least a dozen. Production data, though, are listed for only two adipates by name. Here's a four-year breakdown:

Production of Adipates for Plasticizers

(million lbs.)

	1950	'51	'52	'53
Di(2-ethylhexyl) adipate	2.0	1.1	3.2	3.5
Diiso-octyl adipate	1.2	2.4	1.1	1.5
All other	2.8	3.6	3.0	4.2
Total	6.0	7.1	7.3	9.2

Observers envision a sharply rising sales potential for certain adipates in synthetic lubricants. Since sebacates had a head start in this application, one lubrication expert tells *CW* that any diesters that can cut a share of this market must be "as good or better than the ones made from sebacic acid." At present, there are several adipates "in the running."

Although the adipate plasticizers promote cold-temperature flexibility of some vinyl plastics, for example, adipic acid enters other plastics as a part of the molecule.

Adipic in Polyesters: Some resin producers modify phthalic anhydride-ethylene glycol alkyd resins with adipic acid. Some 309,000 lbs. (dry basis) of the latter were turned out in 1953. Makers of certain styrene-alkyd polyesters incorporate adipic—for example, in those made from sty-

* Nylon 66 is the polyamide resulting from the polymeric condensation of adipic acid and hexamethylene diamine. Theoretically, about 0.65 lb. of adipic acid and 0.51 lb. of hexamethylene diamine are consumed in producing one pound of nylon 66. Yields vary according to type of final product: filaments, molding powders, etc.

** To produce hexamethylene diamine Chemstrand hydrogenates adiponitrile made from ammonia and adipic acid. Du Pont, however, derives its diamine from adiponitrile produced either at Victoria, Tex., from butadiene or from furfuraldehyde at Niagara Falls, N.Y. It also still makes some adiponitrile from adipic acid.

† Chemstrand, owned jointly by the American Viscose Corp. and Monsanto Chemical Co., is licensed to use the Du Pont processes to make nylon 66.

Who makes the Clearest Pyrethrum Extract?

■ As the recognized pioneer in the development and processing of pyrethrum, MGK is the original and first producer of standardized pyrethrum extracts of brilliant clarity. In addition, we have developed excellent synergized pyrethrum concentrates, dusts and powders. If your insecticidal sprays, dusts or aerosols include the use of pyrethrum in any form, or the use of its companion product allethrin, write for the latest authoritative data. We also have available recent information concerning the most effective synergists, MGK 264 and piperonyl butoxide.

MCLAUGHLIN GORMLEY KING Company

5 E. FIFTH STREET / MINNEAPOLIS, MINNESOTA

rene with such combinations as fumaric acid and ethylene glycol, maleic anhydride and ethylene glycol, or with the glycol alone. Prospects for these species of polyester are bright as new uses continually pop up.

Along with an eye on adipates and polyesters, market men are also watching another not-too-distant adipic acid outlet: the German-developed Vulcollan type of rubber, a condensation product of a polyester—made of ethylene and propylene glycols and adipic acid—and certain diisocyanates.

The Vulcollan type of elastomer has been nutured in this country by Goodyear Tire & Rubber Co. as the product Chemigum SL, although it has not yet made its commercial debut. Although several processing problems are about licked, commercialization of the SL and other polyurethanes is trammeled today by the relatively high cost of the diisocyanates required. Monsanto Chemical is already turning out adipic acid in anticipation of a growing polyurethane market.

Caprolactam Joust: Despite potential demand for adipic in polyurethanes, prognosticators don't pin sales plus signs on every established outlet for adipic acid. In fact, synthetic fiber marketers are looking ahead for a running scuffle that may develop between promoters of caprolactam-based nylon-type 6 and those pushing the adipic acid-derived type 66. Some jousting may develop in those end uses where the nylon 6, or Perlon type, can give its money's worth over nylon 66 in greater affinity for dyes, abrasion resistance, softness and pliability, and slightly higher moisture regain or uptake.

With rivalry between these similar polyamides only in the sparring stage at present, Chemstrand, America's second largest producer of nylon, now turns its attention, with the new heavier deniers, to tire, industrial, mechanical goods, and cordage applications of adipic-based nylon. And the adipic's near future appears to be a rosy one as consumer acceptance of nylon 66, adipates, adipic polyesters, and polyurethanes flourishes.

GLYCOLS

Ethylene Glycol

Diethylene Glycol

Triethylene Glycol

Propylene Glycol

(U.S.P. and Industrial)

Dipropylene Glycol

Hexylene Glycol

THE CP CHEMICAL SOLVENTS INCORPORATED

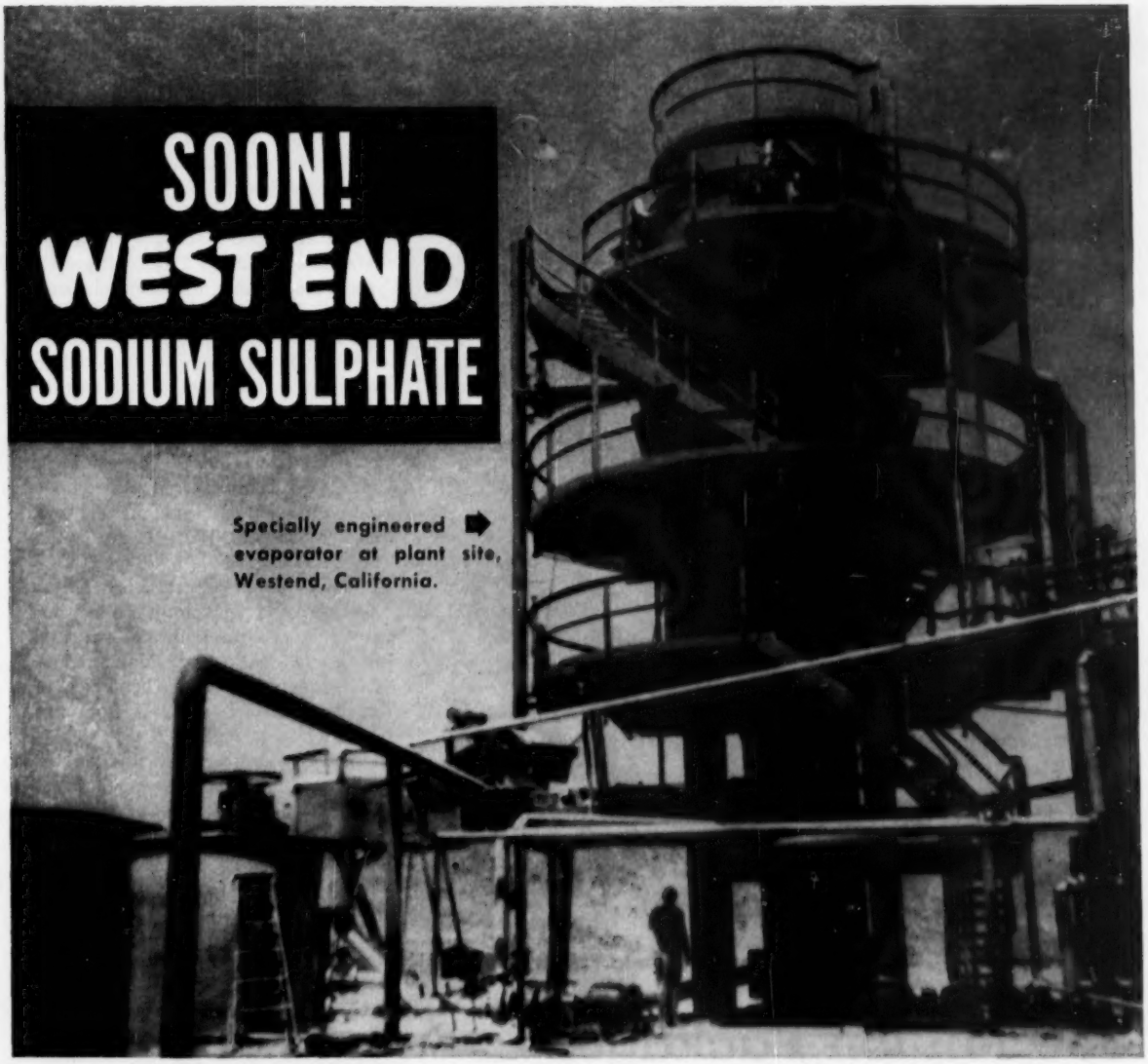
60 PARK PLACE · NEWARK 2, N. J.

WOrth 2-7763 MArket 2-3650

Signpost Market

SATISFY the customer. In the chemical process industries, as in most other enterprises, that's the cardinal rule. And for aluminum it means a new outlet. For after years of evaluation and experience with varied materials that have been used in highway signs throughout Ohio, officials there have given the nod to aluminum. Result: some 2440 such signs are being installed on the new 241-mile-long Ohio Turnpike. A total of 357 signs (*see cut*), will be made up of 2-ft.-wide extruded panels joined together by a new sign construction technique. The others will be constructed of aluminum sheet. Both are products of Aluminum Co. of America.

Added: a market for various colors of reflecterized paints.



New plant now under construction to tap rich natural source of sodium sulphate

West End Chemical Company will start producing salt cake and anhydrous sodium sulphate by approximately mid-summer, 1955, at the rate of 50,000 tons annually. Output will be geared to serve the national market. Production can be stepped up at any time. The natural brine deposits at Searles Lake, California, will support a production many times this amount.

West End Sodium Sulphate and Salt Cake will be of very high quality. They will be *chemicals* produced by a chemical process in a chemical plant — not by-products.

Inquiries are invited. West End will be pleased to work out freight schedules on salt cake or anhydrous sodium sulphate to any points in the United States in quantities required.

WEST END CHEMICAL COMPANY
SODA ASH · F. M. SMITH BRAND BORAX · HYDRATED LIME

West End Chemical Co.

Executive offices: 608 Latham Square Building, Oakland 12, California · Plant: Westend, California

MORE BULK, more promotion—paths to beat chemicals-in-fiber's 1954 record of . . .

550 Million Packages

Only a short time ago, one of the leading chemical companies decommissioned one of its wooden containers for shipping 5 and 10 gal. drum samples of liquids to foreign countries. From now on, it will be using instead, a square double-corrugated fiber container with hand slots. Reason: simply that tests show the fiber container will provide better cushion and greater dent-resistance than the old, wooden box.

This instance, while isolated, may be typical of certain recent packaging trends in the chemical industry. At least the fiber-box manufacturers are hopeful that certain of their developments are beginning to bear fruit.

Whether it is solvents, automotive specialties, insecticides, pharmaceuticals or milk powder, the fiber-box makers are apparently becoming more aware than ever before of the opportunities arising from special chemical container requirements.

Big and Little: Developments in chemical packaging are moving in two opposite directions. The packaging department head of one large chemical supplier describes the situation this way:

"On one hand, there is a definite trend toward greater use of fiber containers for larger bulk shipping. For instance, our company is now moving plastic pellets in square, corrugated boxes holding 1000 lbs., replacing a 200-lb. capacity metal drum."

"On the other hand," he explained, "fiber boxes are likely to play an increased role in the merchandising of consumer products. More and more items like antifreeze, detergents and solvents will go to hardware stores, supermarkets and gas stations in consumer-size packages with plenty of promotion material written on the outside carrier box."

Another example of the large bulk trend: the 2000-lb. capacity octagonal fiber box (*see cut*). Lined with waterproof crepe lining, it carries anhydrous sodium thiosulfate for one chemical producer. Significant point: although the design is perhaps 10 years old, its adaption in the 2000-lb. size was developed relatively recently.

Some more recent examples of other consumer items now being displayed from fiber containers: plastic dinnerware, plastic jars, plastic musical toys, ceiling material for masonry walls, aerosol sprays.

The do-it-yourself trend fostered by hardware and paint stores is one prime factor in this push toward increased small-unit packaging requirements. One survey indicates that sales of smaller units are up 25% from five years ago.

New Awakening: Although in the past, most chemical company applications for fiber boxes have originated from the chemical makers, alert box makers are becoming aware that there's a plethora of potential in chemicals' specialized needs. As a result, some box companies' research and development departments are loaded right now with specific and immediate problems.

Although growth of fiber and paper containers for chemicals has increased about 2½ times in the past 10 years, it would seem that the period just ahead may be even more active.

•

For Your Reference:

- Glycol carbonates—technical leaflet providing data on the chemical, physical, and physiological properties of ethylene and propylene carbonates. Packaging information and possible applications are also included. Carbide and Carbon Chemicals Co., New York City.
- Loading Dock Ramps—booklet describing technical aspects and use and installation of hydraulic adjustable ramps for loading docks. Rowe Methods, Inc., Cleveland.
- Epoxy glass—technical leaflet delineates data on the physical and chemical properties of Haveg 9710, a fiberglass-reinforced epoxy construction material. Haveg Corp., Wilmington, Del.

LITHIUM

.....the Miracle Element

Chemical Genie of the CPI, Lithium's near-magical properties recurrently offer the key to possibilities in countless fields of research. Many of its uses were unheard of a bare year or two ago. Today, more and more scientists, researchers and development engineers are finding lithium the "open-sesame" in heretofore inaccessible areas of research.

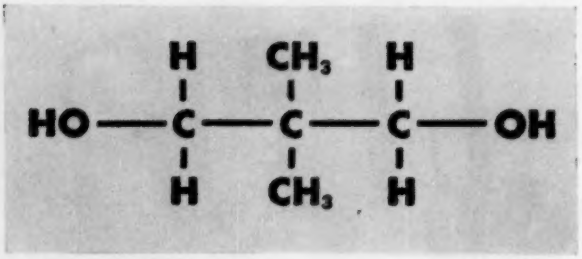
Lithium could well pave the way to even more amazing—and profitable—developments in the years to come. So take a long look at lithium, particularly if you have a production interest in organic chemicals, ceramics, air conditioning, greases, metallurgy, pharmaceuticals, brazing fluxes or atomic energy. Investigate this wonder metal. It could mean profits *for you!*

. . . trends ahead in industrial applications for Lithium

LITHIUM CORPORATION OF AMERICA, INC.

Suite H
Rand Tower
Minneapolis 2, Minnesota

MINES: Keystone, Custer, Hill City, South Dakota · Bessemer City, North Carolina · Cat Lake, Manitoba · Amos Area, Quebec
CHEMICAL PLANTS: St. Louis Park, Minnesota · Bessemer City, North Carolina · RESEARCH LABORATORY: St. Louis Park, Minnesota



Characteristics:

Short chain length
Symmetrical
Reactive

Typical Properties:

Form	Crystalline Solid
Color	White
Melting Point	124°—130°C
Purity	96% Minimum

Increased availability—

neopentyl glycol

Potential Uses:

Polymeric plasticizer manufacture
Polyester resin manufacture
Alkyd resin modifier

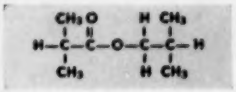
Interest in this isobutyraldehyde derivative has increased to such a degree that additional production has become necessary. A large pilot plant is now in operation at Longview, Texas, and semi-commercial quantities are immediately available. Write to us at Kingsport, Tennessee, for details.

Eastman
CHEMICAL PRODUCTS, INC.
KINGSPORT, TENNESSEE
subsidiary of EASTMAN KODAK COMPANY

SALES OFFICES: **Eastman Chemical Products, Inc.,** Kingsport, Tenn.; New York—260 Madison Ave.; Framingham, Mass.—65 Concord St.; Cincinnati—Carew Tower; Cleveland—Terminal Tower Bldg.; Chicago—360 N. Michigan Ave.; Houston—412 Main St.; St. Louis—Continental Bldg. **West Coast: Wilson Meyer Co.,** San Francisco—333 Montgomery St.; Los Angeles—4800 District Blvd.; Portland—520 S. W Sixth Ave.; Salt Lake City—73 S. Main St.; Seattle—821 Second Ave.

other derivatives

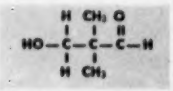
of Eastman isobutyraldehyde now available include:



isobutyl isobutyrate

Color, APHA	15 maximum
Ester Content	98% minimum
Boiling Range	146°-148°C/760 mm
Specific Gravity, 20°/20°C	0.850-0.860
Acidity, as isobutyric acid	0.5% maximum

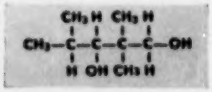
Available in pilot plant quantities



hydroxypivaldehyde

Form	Solid
Color, APHA	200 maximum
Assay (wet basis)	50% minimum
Assay (dry basis)	90% minimum

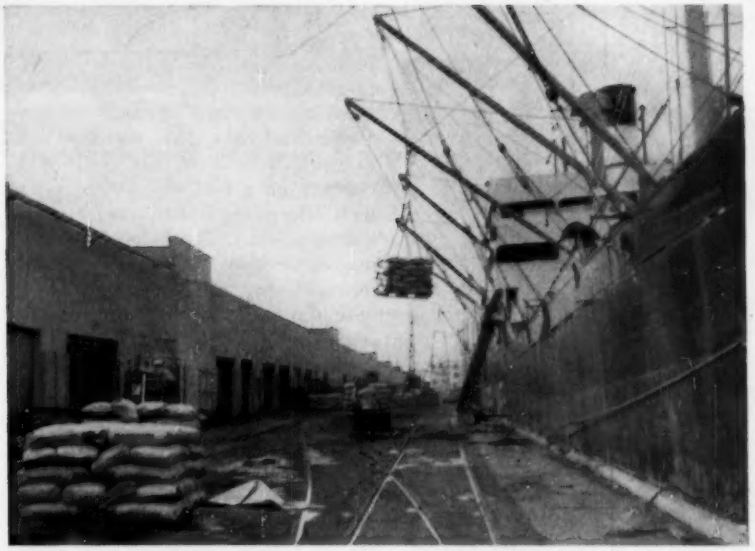
Available in pilot plant quantities, shipped as a wet cake to insure stability.



2,2,4-trimethyl-1,3-pentanediol

Form	Crystalline Solid
Color	White
Melting Point	49°-51°C
Purity	95% minimum

Available in research quantities



CHEMICALS AT HOUSTON: More will be wooed to the wharves in the city's . . .

Campaign for Cargo

Down in Houston, Tex., they're not satisfied with being merely successful. Although the port is now second in the nation in terms of total tonnage, Houston leaders are intent upon expanding local trade.

Chemical and other companies are going to hear a lot more about the town in the coming weeks. Latest activity for the port: a $265,000 promotion to advertise activities and advantages. With such well-known Houstonians as Hugh Cullen and Jesse Jones chairmanning the advisory committee, the campaign will be based on the theme that "business for the port is good business for everyone." General chairman of the campaign will be John Mayfield, one of the organizers of the Port Bureau and head of an industrial and materials handling equipment company.

Realizing that competitive ports are spending as much as a half-million dollars a year to promote business, this year Houston leaders boosted their campaign budget over 2½ times the former figure of approximately $100,000.

Two items on the new budget:

• New offices will be opened in Chicago and Dallas and the staffs of the Houston, Kansas City and New York offices will be increased.

• A brochure is being prepared that will emphasize that the rapid population and economic growth of the area is largely due to the availability of low-cost water transportation. Special note: many new plants, among them the giant petrochemical makers, have been brought to the port because of its facilities and economies.

To be conducted throughout the month of January, the current drive for shipping business will stress the port's desire to increase traffic in general cargo. Although Houston has stepped up its total tonnage in recent years, it has lagged somewhat in the more profitable general shipping business.

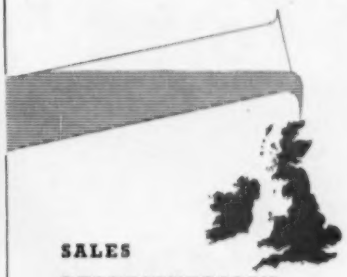
•

Sales Moves: Two divisions (Ohio-Apex and Niagara Chemical) of the Food Machinery & Chemical Corp. have opened up new sales offices. Ohio-Apex has established an office in Los Angeles, and Niagara Chemical has located export sales offices in New York.

• General Electric is expanding sales coverage for its decorative plastics, "Textolite." Headquartered in San Francisco, a Western regional office will serve the Pacific Northwest, Utah, Nevada and Montana. Other offices have recently been founded in Kansas City, Philadelphia and Atlanta. The company is planning for others to follow.

•

New Resins. Diamond Alkali Co. (Cleveland) is supplementing its resin line with a new polyvinyl chloride processing between 315-330 F°.



SALES
REPRESENTATION
IN BRITAIN

The time may soon come when you will require first-class representatives in Great Britain, who can take full advantage of an easing Dollar situation to introduce your Chemical and Pharmaceutical products. Such an organisation must be both long established (our Parent Company was founded in 1797) and progressive, combining intimate knowledge of the market with imagination and drive. This is why we suggest you contact us.

G I

a Harris & Dixon company

GUEST INDUSTRIALS LTD
Raw Materials Division
81 Gracechurch St., London, E.C.3.

BIG . . . AD BUDGET . . .

small . . . ad budget

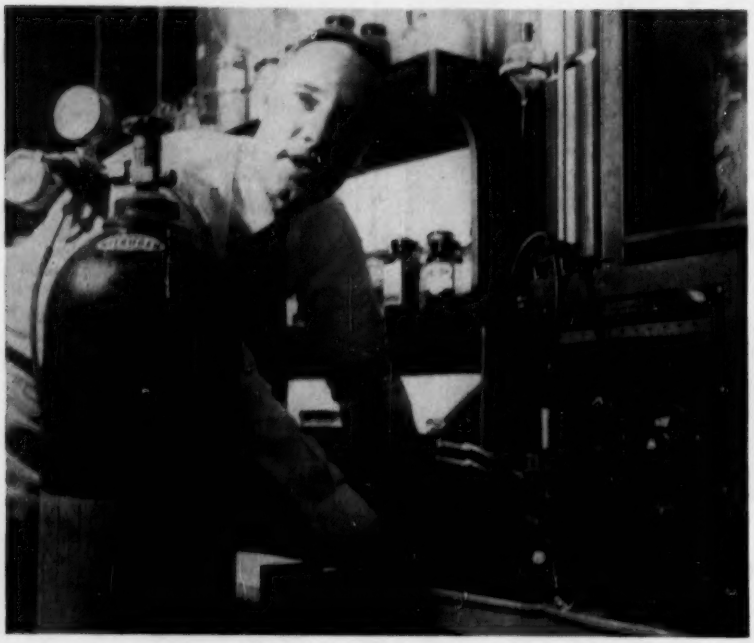
. . . it makes no difference . . . if you sell the Process Industries, the CHEMICAL WEEK BUYERS' GUIDE is a prime factor in your sales planning.

Ad units to fit every pocketbook . . . plus a proven record of dollar profits and year-round use. Hitch your product story to the BUYERS' GUIDE and watch it pull.

Write for details today!

CHEMICAL WEEK BUYERS' GUIDE

McGraw-Hill Publishing Co.
330 West 42nd Street,
New York 36, N. Y.



CALIFORNIA'S ALDRICH: Soil tests buttress nitrogen dioxide's try at . . .

Filling in for Nitrates

This week, researchers at the University of California's Citrus Experiment Station were readying tests that could give the Wisconsin nitrogen-fixation process a new lease on life.

Three years of studies in the station's Riverside, Calif., laboratory and greenhouse have pointed up the advantages and delineated the problems of using nitrogen dioxide as a fertilizer. Now, large-scale trials are getting under way.

Nitrogen dioxide is a primary product of the direct fixation process recently evaluated at Lawrence, Kans. (for the U. S. Army's Ordnance Corps) by Food Machinery & Chemical Corp. The trial plant was shut down last September* as uneconomic for making nitrates.

In this process, pioneered by University of Wisconsin Professor Farrington Daniels, nitrogen dioxide is made by direct fixation of atmospheric nitrogen at temperatures in the vicinity of 2100 C. Dissolved in water, the dioxide yields 60% nitric acid that may be combined with ammonia to give ammonium nitrate fertilizer. Existing ammonium nitrate plants produce their own nitric acid from ammonia; and—as the trials at Lawrence have shown—they do it more economically.

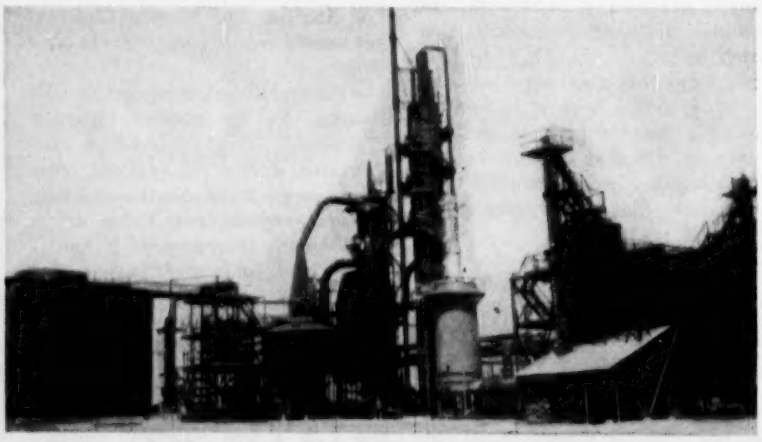
But, if nitrogen dioxide could be used directly as fertilizer, the nitric acid step would be bypassed and direct fixation would be catapulted into a much better competitive position.

In areas that lack native nitrate deposits, nitrogen dioxide (made directly from air) would possess decided process advantages over synthetic nitrates (which call for a good source of hydrogen). Elsewhere, the gas would compete on a cost and weight basis with other nitrogen fertilizers (nitrates, ammonia, etc.). But before any such market develops, many experimental furrows remain to be tilled.

In the pending tests, nitrogen dioxide gas will be injected directly into the ground. This way it is trapped in the soil and oxidized to the nitrate, in which form nitrogen is most readily utilized by plants. The ideal method would be to add the gas to irrigation water. Because considerable (about a third) gas escapes into the air during the addition, this method has yielded to soil injection. But there is hope that continuing research will overcome the waste problem.

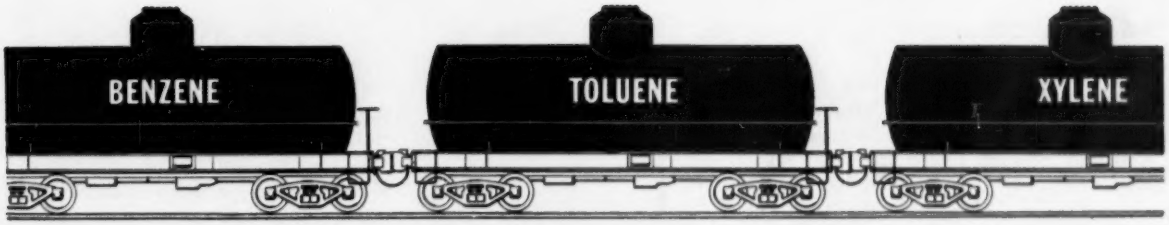
Room for Improvement: According to experiment station chemist Daniel Aldrich, spearhead of the nitrogen dioxide research, the soil injection method, too, could stand improvement. Still to be worked out is the right kind of equipment to handle the highly corrosive gas. For one thing, present pumps don't quite meet the necessary requirements. Right now, FMC is preparing a highly accurate metering pump for this purpose.

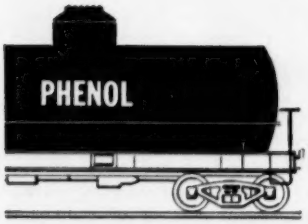
It's expected that up to 400 lbs./acre of nitrogen will be applied, giving extremely high initial concentrations of the nitrogen dioxide. Just what effect this will have on plants—the gas is phytotoxic until converted into the nitrate—is a moot question. Oxidation

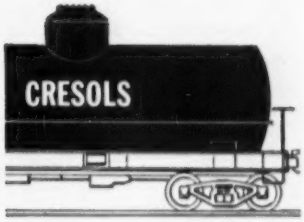


THERMAL FIXATION PILOT PLANT: In the air, a chance of revival.

* FMC subsequently disbanded its San Jose, Calif., research group working on the atmospheric nitrogen fixation project.

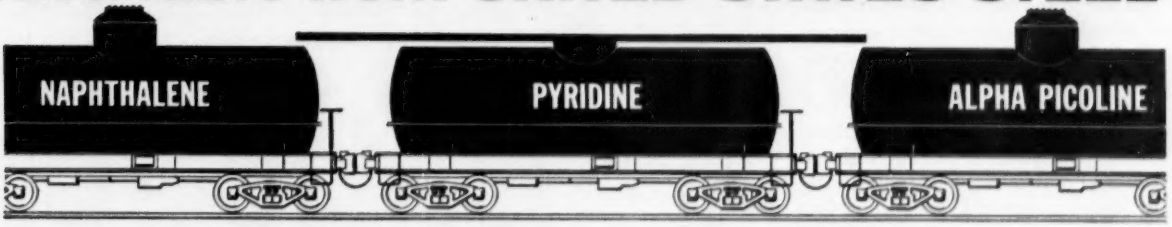


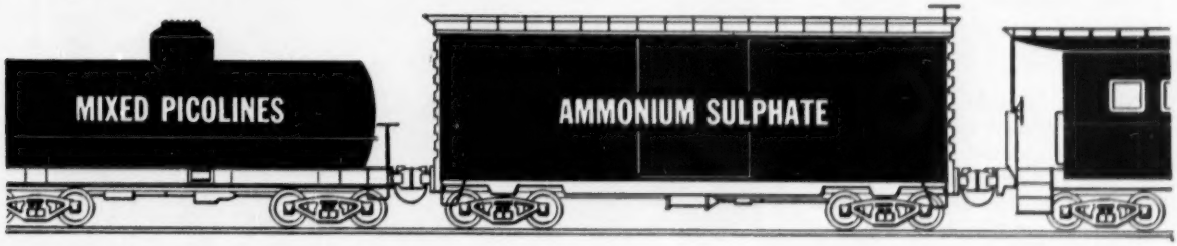




Here's the *complete line* of COAL CHEMICALS

available from UNITED STATES STEEL





United States Steel offers Prompt and Efficient Service on all these coal chemicals

• When you place an order for coal chemicals with United States Steel, you can be certain that it will receive prompt and efficient attention. Shipment and delivery will be arranged to meet your production schedule. For more information, contact our nearest Coal Chemical Sales Office, or write United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

USS Coal Chemicals

4-821

UNITED STATES STEEL

to the nitrate is extremely rapid in acid, neutral, or unbuffered alkaline soils; unfortunately, the gas is most toxic to vegetation under these conditions.

There is also the possibility that the unoxidized gas may prove beneficial as a soil fumigant, although the concentrations required for fertilizer purposes appear to be too low for this purpose.

One advantage of nitrogen dioxide as a fertilizer lies in its acid properties. Injected into alkaline soil, the gas solubilizes phosphorus, permitting plants to assimilate this otherwise unavailable element. However, highly buffered alkaline soils (e.g., those that contain free lime) present another problem. These soils retard oxidation of the nitrogen dioxide to nitrates, leaving ¼ to ⅓ of the gas in the form of toxic nitrites that might inhibit rather than promote plant growth.

'If at First . . .': No new hand at the game, Aldrich has spent 10 years researching the value of acid fertilizer materials in alkaline soil, the predominant form in the West. In 1947, he did some exploratory work with nitric acid in California's Imperial Valley. But the relatively high cost of nitric acid precluded its use as a source of agricultural nitrogen; packaging and handling also posed difficult problems.

The advent of FMC's atmospheric nitrogen fixation program, with its promise of relatively low-cost oxides of nitrogen, sparked the current line of investigation. As a matter of fact, a good proportion of the nitrogen dioxide used in Aldrich's experiments has been provided by FMC from its pilot plant.

Nitrogen dioxide suppliers (the compound is used today in nitration, oxidation, explosives, etc.), like Matheson Co. (E. Rutherford, N. J.) and Allied Chemical & Dye Corp. (New York), point out that even by present manufacturing methods the gas (15¢/lb. in 125 lb. net cylinders) can almost compete with anhydrous ammonia (18½ to 21¢/lb.) as a nitrogen source. But it's much more hazardous to ship, store and handle.

Aldrich and coworkers are pushing ahead with the fertilizer work, want to find out as much as possible about nitrogen dioxide in anticipation of the time it becomes a cheap nitrogen source. Their efforts may be a significant factor in hastening that day.

Process Showcase

There's only one way to determine exactly how a new process will behave in commercial-scale operation—build a plant and try it out. It's the hard way but, in the opinion of The Sharples Corp., it's necessary for the development of vegetable oil refining methods. This week the Philadelphia firm—which doesn't sell a drop of vegetable oil—began to test its uncommon theory in a new full-scale refinery devoted to research.

Designed for demonstration as well as development, the unit will double as a silent salesman for Sharples processes and equipment.

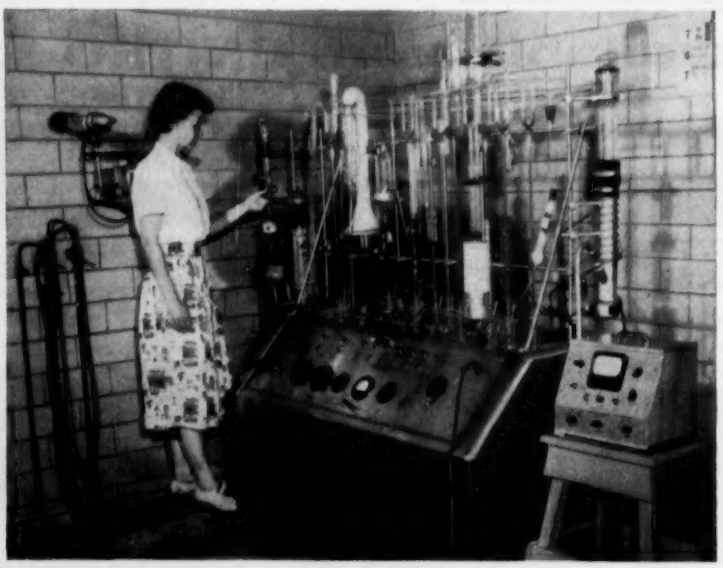
Built for $200,000, the research refinery is the embodiment of a philosophy that states, simply, that the day of the pilot plant in the vegetable oil business is past. Proponents of this theory point out that refining technology has progressed to a point where only a very small part of crude oil is not recoverable by existing commercial techniques.

Researchers are now seeking ways to squeeze the last drops of usable oil out of the crudes. Boosting yields by even ½% would mean big profit dividends to processors that, collectively, refine 4-5 billion lbs./year of edible oil.* When you are working with such small margins of product, you can't rely on pilot-plant results; savings have a way of getting lost when the process is scaled up.

That's the stand of those who claim that only full-scale production runs under actual refinery conditions can supply reliable process development data.

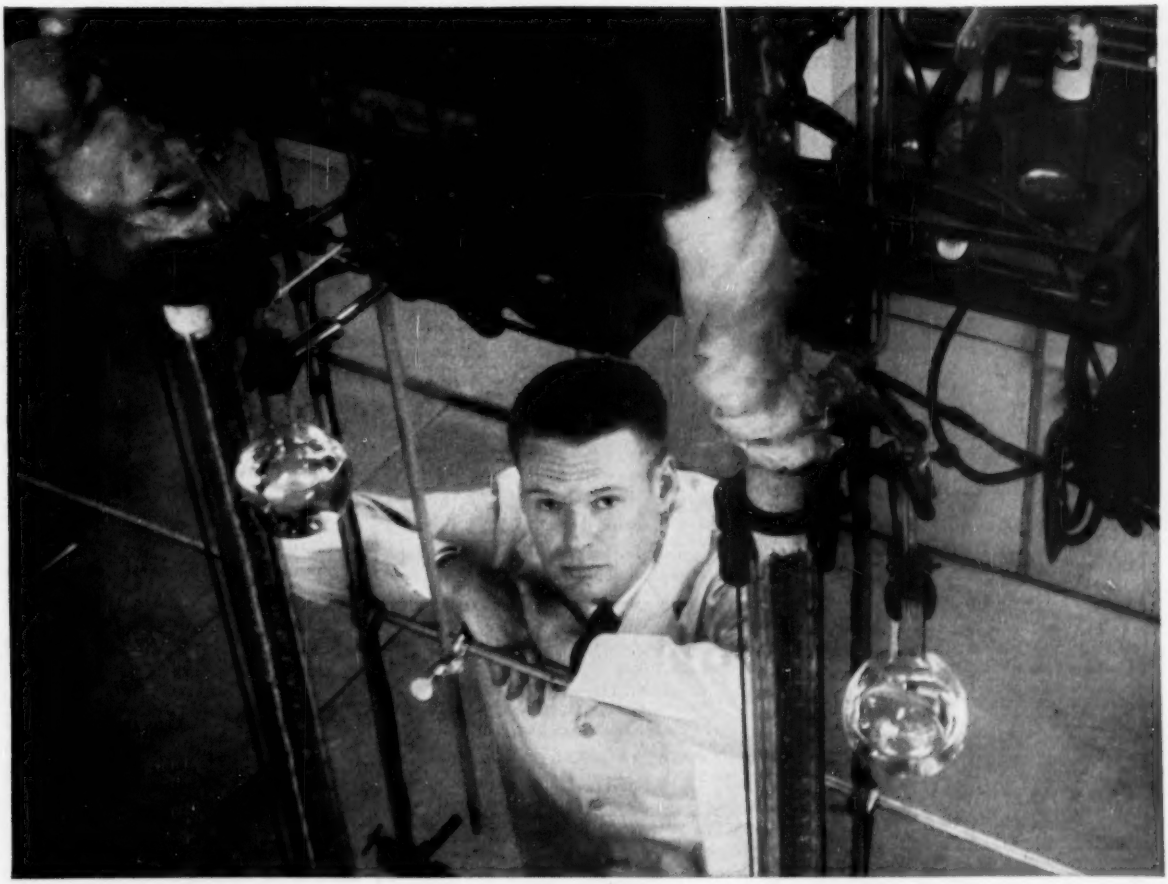
Quest for Mildness: Since the advent of centrifuges designed to pull entrained oil out of caustic-precipitated contaminants, refining research

* Of which the greatest part, 2½-3 billion lbs. is soybean oil.



Ambidextrous Analyzer

THE CHEMICAL ANALYST may become a vanishing species if the instrument designers are given free rein. The new gas analyzer shown above is a silent testimonial to the trend. In one fell swoop it measures the volume of gases liberated by titanium heated to 3600 F (and reacted with graphite), determines how much ductility-reducing gas is allowable in different commercial forms of titanium. It does these jobs in the laboratory of Mallory-Sharon Titanium Corp. (Niles, O.).



Use Our Mr. Brooks and his Glycol Ethers

Just recently, Bill Brooks (above), a member of our Commercial Chemical Development Department, put our ETHER-141 to profitable use for a Midwest manufacturer of pharmaceutical compounds.

If the physical and chemical properties of the glycol ethers suggest their application within your manufacturing operation, you may well want the kind of help our Mr. Brooks can provide.

Write Bill Brooks for more information about these solvents. ANSUL CHEMICAL COMPANY, Dept. C-11, Industrial Chemicals Division, Marinette, Wisconsin.

PHYSICAL PROPERTIES	ANSUL ETHER-121 Ethylene Glycol Dimethyl Ether $CH_3OCH_2CH_2OCH_3$	ANSUL ETHER-141 Diethylene Glycol Dimethyl Ether $CH_3(OCH_2CH_2)_2OCH_3$	ANSUL ETHER-161 Triethylene Glycol Dimethyl Ether $CH_3(OCH_2CH_2)_3OCH_3$	ANSUL ETHER-181 Tetraethylene Glycol Dimethyl Ether $CH_3(OCH_2CH_2)_4OCH_3$
Molecular Weight	90.120	134.17	178.22	222.28
Specific Gravity at 20/20° C.	.8683	.9451	.9862	1.0130
Boiling Point 760 mm of Hg. 100 mm of Hg.	85.2° C. 35.0° C.	162.0° C. 103.0° C.	216.0° C. 153.6° C.	275.3° C. 189.0° C.
Melting Point	−68.0° C.	−68.0° C.	−46.0° C.	−29.7° C.
Auto Ignition Temperature	745.0° C.	720.0° C.	630.0° C.	610.0° C.
Solubility at 20° C. In Water In Hydrocarbons	Complete Complete	Complete Complete	Complete Complete	Complete Complete
Absolute Viscosity at 20° C.	1.1 cp.	2.0 cp.	3.8 cp.	4.05 cp.
pH	8.2	7.0	7.5	7.2
Color	Water-white	Water-white	Water-white	Water-white
Odor	Mild Ether	Mild Sweet	Mild Ether	Mild

ANSUL

tracers... to opportunities in the chemical process industries

MANAGEMENT SERVICES

ENGINEERING CORPORATION OF AMERICA

Chemical & Petro-Chem Process Plants
Industrial Waste Treatment Projects
Air Pollution Abatement
Special Mechanical & Process Equipment
205 Grove Street Westfield, N. J.
Westfield 2-7117

D. H. KILLEFFER

- TECHNICAL PUBLICITY
- TECHNICAL SALES LITERATURE
- ANNUAL REPORTS
- COMPANY HISTORIES
- BIOGRAPHIES
- TECHNICAL GHOST WRITING

Telephone: SPencer 9-8821
188 Westchester Avenue Tuckahoe 7, N. Y.

THE C. W. NOFSINGER COMPANY

Personalized Engineering Service
PETROLEUM REFINING AND CHEMICAL INDUSTRIES

- Surveys—Planning—Process Design
- Engineering Design—Drafting—Procurement
- Supervision of Construction and Operation

906 Grand Avenue, Kansas City 6, Missouri

JAMES P. O'DONNELL

Engineers

CHEMICAL PROCESS PLANTS
Design—Procurement—Construction Supervision
39 Broadway, New York 6

SIRRINE

ENGINEERS
Plant Design & Surveys covering Chemical Electrochemical and Metallurgical Production; Industrial Waste Disposal; Water Supply & Treatment; Analysis & Reports
J. E. SIRRINE CO.
Greenville South Carolina

Wisconsin Alumni Research Foundation

Project Research, Consultation, and Production Control Services in Biochemistry, Chemistry, Bacteriology, Entomology, and Pharmacology.
Write for price schedule
Wisconsin Alumni Research Foundation
P.O. Box 2059-G • Madison 1, Wisconsin

EMPLOYMENT

REPLIES (Box No.): Address to offices nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

Position Vacant

Salesmanager, for large established Anhydrous Ammonia Plant, to promote and expand the sale of ammonia in cylinders and tank truck deliveries. Salesmanager to handle local market and make occasional field trips. Please reply giving qualifications and experience. Replies will be treated confidentially. Tanner-Hall, Inc., 252 N. 11th Street, Philadelphia 7, Pa.

Position Wanted

Mgr. chemicals related products imp. exp. sales purchases. Diversified exp. — 20 years large Jap. Corp. — present employers 14 years. Some travelling abroad; traded during scarcity periods. Also quality purch. agent. Prefer large mfr. PW-5040, Chemical Week.

EQUIPMENT--used-surplus

For Sale

Filter, Niagara, Stainless, 110 Sq. Ft.; St. St. Slurry Feeder. Perry Equip., 1415 N. 6th St., Phila. 22, Pa.

Lightnin Side Entering Stainless Steel Mixers— Unused—Sev-2500 (25 HP) and Sev-750 (7½ HP). Perry Equip., 1415 N. 6th St., Phila. 22, Pa.

Tank, St. St., T304, Horiz. 10,500 gal. Unused. Perry Equip., 1415 N. 6th St., Phila. 22, Pa.

Wanted

Used Baker Perkins Laboratory size mixer equipped with sigma arm blade and motor. Send information to the American Fluresit Co., Cincinnati 27, Ohio.

WANTED

MACHINERY OR PLANT INCLUDING

Vacuum Dryers	Columns
Filter Presses	Pulverizers
Heavy Duty Mixers	Packaging and Wrapping Equipment
Rotary Filters	8/8 and non-corrosive
Reaction Kettles	Storage Tankage

P. O. Box 1351, Church St. Sta. N. Y. 8, N. Y

CHEMICALS WANTED

BUYERS OF SURPLUS

CHEMICALS—OILS—SOLVENTS
DRUGS—RESINS—WAXES
PLASTICS—COLOR—ETC.
BARCLAY CHEMICAL COMPANY, INC.
75 Varick Street New York 13, N. Y.
WORTH 4-5120

SURPLUS WANTED

CHEMICALS, PHARMACEUTICALS, OILS
PLASTICIZERS, RESINS, DYES
SOLVENTS, PIGMENTS, ETC.
CHEMICAL SERVICE CORPORATION
96-02 Beaver Street, New York 5, N. Y.
HAnover 2-6970

SURPLUS BOUGHT

ODD LOTS—DISCONTINUED RAW MATERIALS —SPENT OR CONTAMINATED SOLVENTS— RESIDUES — METAL SLUDGES — OBSOLETE PLANT INVENTORIES
ACETO CHEMICAL CO., INC.
40-40 Lawrence St., Flushing 54, N. Y.
INdependence 1-4100

CHEMICALS OFFERED

Collatex Ammonium Alginate:-2,500 pounds in 112-pound unopened steel containers for quick sale. Crown Diamond Paint Co., Ltd. Montreal.

DEALERS in used-surplus

Buy With Confidence

Send us your inquiries for your requirements in Used Chemical and Process Machinery.
—"our 37th year"—
Consolidated Products Co., Inc.
184 Observer Highway, Hoboken, N. J.
Hoboken 3-4425 N. Y. Tel. Be 7-0800

SPECIAL SERVICES

Truland Chemical & Engineering Co., Inc.

AVAILABLE CUSTOM REFINING FACILITIES
WANTED
Distillation, Extractions
Separations, Fractionations
All Types of Crude Mixtures
Drum Lots - Tank Cars
By-Products, Residues, Wastes
Contaminated Solvents
Box 426, Union, N.J. Murdock 6-5252

RESEARCH . . . . . .

has concentrated on reagents that could eliminate losses due to hydrolysis and saponification by the caustic. Soda ash and more recently ammonia have come into use in this connection.

The new refinery may be set up, by turning the right valves, for any of the five common processes built around these reagents. An elaborate system of weigh-tanks keeps watch on critical material balances. Capacity of the research plant: 60,000 lbs. (a carload) daily.

Sharples will use the unit for its process and equipment development work, also make it available to refiners interested in doing their own research. First to take advantage of the scheme is a large salad-dressing producer that, of course, is supplying the oil for its experiments. Sharples will buy the crude for its own research from a Philadelphia refiner, sell him the refined product after studies are completed.

Sharples vegetable oil pilot refinery at West Chester, Pa., will be closed down as soon as the new facilities are ready to accept the former's personnel and equipment.

•

Aniline Tracer: Carbon-14-labeled aniline is a new addition to Nuclear Instrument and Chemical Corp.'s (Chicago) line of radioactive organics. The tagged compound is expected to find use in solvent-partition studies, and in elucidating mechanisms of organic reactions. It is available in three package sizes (1, 0.5 and 0.1 millicuries) under Atomic Energy Commission licensing procedures.

•

Polyethylene Strengthener: High loadings of carbon black will increase the bursting strength of polyethylene pipe, according to research by Acheson Dispersed Pigments Co. (Philadelphia). The company still hasn't finished its investigations aimed at determining whether plastic pipe can be competitive with steel in certain applications. Carbon-black maker Godfrey L. Cabot, Inc. (Boston) is assisting in the study.

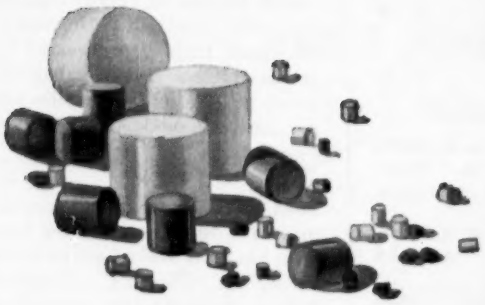
•

Plastic Silos: At Purdue University's dairy research laboratories, plastic bags are being tried as miniature silos. Grass, sealed in the bags under vacuum, is preserved indefinitely, can be used in long-range silage experiments. Until the new storage technique was worked out, the grass fermented too quickly for extensive tests. Goal of

HARSHAW'S

Continuous Research Develops

stronger *tableted* catalysts



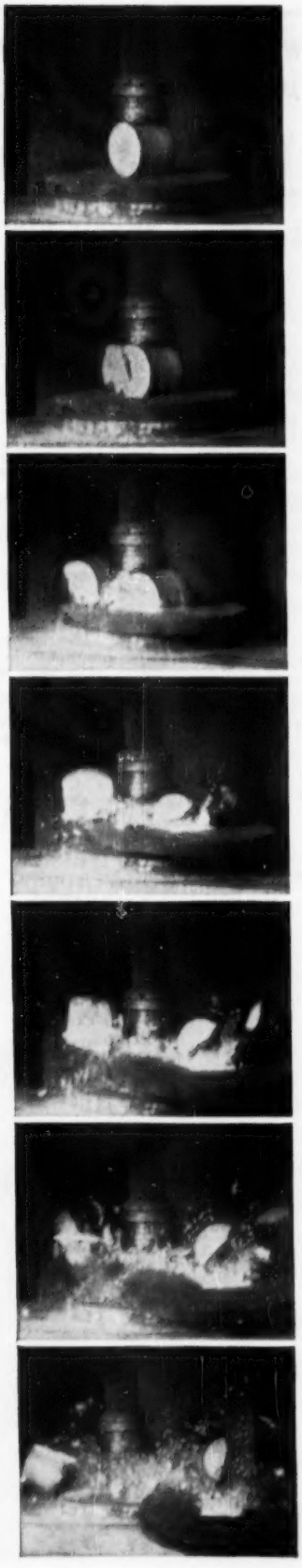
THE HARSHAW CHEMICAL COMPANY

Cleveland 6, Ohio

Chicago • Cincinnati • Cleveland • Detroit • Houston
Los Angeles • New York • Philadelphia • Pittsburgh

SUPPORT JUNIOR ACHIEVEMENT

Junior Achievement Week, January 30-February 5



Taken at 1/20,000th of a second, the pictures show a Harshaw catalyst tablet being tested for strength—one step in our research program designed to produce more efficient tableted catalysts having the highest useful strength. Our goal, of course, is to make the catalyst you want and need. First you specify, and then we produce.

Tougher, more efficient catalysts mean fewer reactor shutdowns, and, naturally, more economic operation for you. Harshaw Catalysts mean fewer reactor shutdowns.

If your mind's on catalysts please contact us today by phone or letter.

HARSHAW CATALYSTS
available in these forms:

Tablets	Powders
Extrusions	Spheres
Granules	Rings
Flakes	

CHEMICAL WEEK • ADVERTISERS INDEX

JANUARY 8, 1955

ALLOY FABRICATORS DIV. OF CONTINENTAL COPPER & STEEL INDUSTRIES INC. B42
Agency—Hiram Ashe Adv., Inc.

AMERICAN CYANAMID CO., MANUFACTURES CHEMICALS DEPT. 45
Agency—Hazard Adv. Co.

ANSUL CHEMICAL CO. 65
Agency—Kenyon & Eckhardt, Adv.

ATLANTIC REFINING CO. 50
Agency—N. W. Ayer & Son

BAKER-PERKINS CHEMICAL CO. Third Cover
Agency—Price, Tanner & Willox, Inc.

BEMIS BRO. BAG CO. 8
Agency—Gardner Adv. Co.

CARBIDE & CARBON CHEMICALS CO., A DIV. OF UNION CARBIDE & CARBON CORP. ..... Back Cover, T46
Agency—J. M. Mathes, Inc.

CHEMICALS SOLVENTS, INC., THE C. P. T56

CHURCH & DWIGHT CO. B48
Agency—J. Walter Thompson Co.

COLUMBIA-SOUTHERN CHEMICAL CORP. ..31
Agency—Ketchum, MacLeod & Grove, Inc.

COMMERCIAL SOLVENTS CORP. 43
Agency—Fuller & Smith & Ross, Inc.

COPPER ALLOY CORP. 23
Agency—Mahool Adv., Inc.

DODGE & OLCOTT, INC. 41

DOW CHEMICAL CO., THE 32
Agency—MacManus, John & Adams, Inc.

EASTMAN CHEMICALS PRODUCTS, INC. 60
Agency—Kenyon & Eckhardt, Inc.

EIMCO CORP., THE 6
Agency—The Matsie Co.

FRITZSCHE BROTHERS, INC. 26

GOODRICH CHEMICAL CO., THE, B. F. 54
Agency—Griswold-Eshleman Co.

GOODYEAR TIRE & RUBBER CO., INC. 1
Agency—Kudner Agency, Inc.

GRACE CHEMICAL CO. 37
Agency—G. M. Basford Co.

GREAT LAKES CARBON CO. 2
Agency—Davis, Parsons & Strohmeier, Adv.

GUEST INDUSTRIALS—U.S.A. T61
Agency—Coleman, Prentis, Varley, Inc.

HAMMOND BAG & PAPER CO. T42
Agency—Walker & Downing Adv.

HARSHAW CHEMICAL CO. 67

HERCULES POWDER CO. 13
Agency—Fuller & Smith & Ross., Inc.

HESS TERMINAL CORP. 40
Agency—Mahool Adv., Inc.

HILLS-McCANNA CO. 33
Agency—Russell T. Gray, Inc.

INLAND STEEL CONTAINER CORP. 14
Agency—Weiss & Geller, Inc.

KOLKER CHEMICAL CORP. 4
Agency—Sterling Adv. Agency

KRAFT BAG CORP. 47
Agency—Arthur A. Judson, Inc.

LITHIUM CORP. OF AMERICA 59
Agency—Keystone Adv., Inc.

McLAUGHLIN GORMLEY KING CO. T56
Agency—Alfred Colle Co.

NIAGARA ALKALI CO. 49
Agency—Hazard Adv. Co.

OKLAHOMA PLANNING & RESOURCES BOARD 27
Agency—George Anda Adv.

PLAX CORP. 10
Agency—The Charles Brunelle Co.

PRITCHARD & CO., J. F. 53
Agency—Carter Adv. Agency, Inc.

ROHM & HAAS CO. 29
Agency—Arndt, Preston, Chapin, Lamb & Keene, Inc.

SEMET-SOLVAY PETROCHEMICAL DIV., ALLIED CHEMICAL & DYE CORP. 21
Agency—Atherton & Currier, Inc.

SHELL CHEMICAL CORP. 25
Agency—J. Walter Thompson Co.

SHIPPERS' CARLINE CORP. 9
Agency—French & Preston, Inc.

SPENCER CHEMICAL CO. 35
Agency—Bruce B. Brewer & Co.

STAUFFER CHEMICAL CO. 28
Agency—J. Hayden Twiss Co.

SWIFT & CO. 19
Agency—Russell T. Gray, Inc.

TENNESSEE CORP. 34
Agency—Crawford & Porter, Inc.

UNION CARBIDE & CARBON CORP., CARBIDE & CARBON CHEMICALS CO. Back Cover, T46
Agency—J. M. Mathes, Inc.

U. S. STEEL CORP., COAL CHEMICALS DIV. 63
Agency—Batten, Barton, Durstine & Osborn, Inc.

VULCAN COPPER & SUPPLY CO., THE .. 5
Agency—L. F. McCarthy & Co.

WEST END CHEMICAL CO. 57
Agency—Norton M. Jacobs Co.

WESTVACO CHEMICAL DIV., FOOD MACHINERY & CHEMICAL CORP. Second Cover
Agency—James J. McMahon, Inc.

WYANDOTTE CHEMICALS CORP. 7, 36
Agency—Brooke, Smith, French & Dorrance, Inc.

tracers SECTION
(Classified Advertising)
H. E. Hilty, Mgr.

CHEMICALS: Offered/Wanted 66
EMPLOYMENT 66
EQUIPMENT: Used/Surplus New
For Sale 66
Wanted 66
MANAGEMENT SERVICES 66
SPECIAL SERVICES 66

ADVERTISING STAFF

ADVERTISING DIRECTOR — B. E. Sawyer
ADVERTISING SALES MGR. — R. S. Muller
BUSINESS MGR. — A. J. Mangold
PROMOTION & RESEARCH MGR. — F. E. Lesner
MARKET SERVICE MGR. — A. Losick

Atlanta 3 ..... William D. Lanier, 1321 Rhodes-Haverty Bldg., Walnut 5778-2383

Chicago 11 ..... Alfred D. Becker, Jr., Steven J. Shaw, 520 N. Michigan Ave. Mohawk 4-5800

Cleveland 15 ..... Vaughn K. Dissette, 1510 Hanna Bldg., Superior 7000

Dallas 1 ..... James Cash, First National Bank Bldg., Prospect 7-5064

Los Angeles 17 ..... Jos. H. Allen, 1111 Wilshire Blvd., Madison 6-4322

New York 36 ..... Knox Armstrong H. L. Brown, L. Charles Todaro, 330 West 42 St., LOngacre 4-3000

Philadelphia 3 William B. Hannum, Jr., Charles F. Onasch, Architects Bldg., 17th & Sansom Sts., Rittenhouse 6-0670

San Francisco 4 ..... John W. Otterson 68 Post St., Douglas 2-4600

Boston 16 ..... 350 Park Square Building Hubbard 2-7160

Detroit 26 ..... 856 Penobscot Bldg., Woodward 2-1793

Pittsburgh 22 ..... 738 Oliver Bldg., Atlantic 1-4707

St. Louis 8 ..... 3615 Olive St., Continental Bldg., Lucas 4867

RESEARCH . . . . . .

the research: to find the best grass for animal feeding.

•

Nuclear Highlights: According to the Atomic Industrial Forum, Inc., 1955 will see a substantial increase in nuclear research, development and construction. The forum credits the projected pickup to the Atomic Energy Act of 1954, considers these events of the past year to be the start of the trend.

• Industrial teams participating in Atomic Energy Commission's program of nuclear power study increased from 8 to 18; individual companies from 41 to 67.

• Private industry became the largest single user of radioisotopes, accounted for 45% of the new users in 1954 and 42% of the total of 2350 isotope-using institutions. Medical institutions were second, comprised 36% of this total.

• About 35 industrial firms, universities, and private organizations joined in a $6-million food radiation-sterilization research program of the Army Quartermaster Corps.

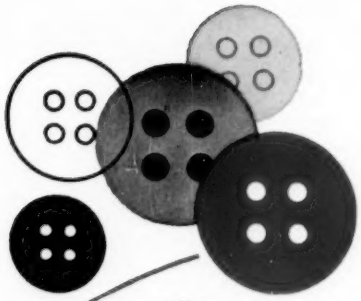
• Construction was started of research reactors at Pennsylvania State University and the University of Michigan. Plans were revealed for research reactors at Massachusetts Institute of Technology, Battelle Memorial Institute, and Armour Research Foundation.

•

Moss Wax: A new and economical process of extracting wax from Spanish moss has been worked out by the University of Florida's (Gainesville) Robert Bennett. The method, says Bennett, also results in usable by-products. He believes the moss could be an eventual source of car polishes, plastic reinforcements, inks, cosmetics, food flavoring, and animal feeds, if domestic sources are successfully cultivated.

•

Ambitious Acid: Jasonols Chemical Corp. (Brooklyn, N.Y.) is now producing vaccenic acid (trans-11-oleic acid), expects it to find use in cosmetic, food, and industrial formulations. The acid is said to have an edge over oleic acid (or any of its cis isomers) in resistance to rancidity. Growth-promoting properties and potentially useful derivatives (via ozonolysis, hydroxylation, halogenation, etc.) are other claims for the product.



BAKER PERKINS
SIZE 14 JNM2 UNIVERSAL MIXER
uniformly blends special vinyl compounds
for Auburn Button Works, Inc., Auburn, N.Y.

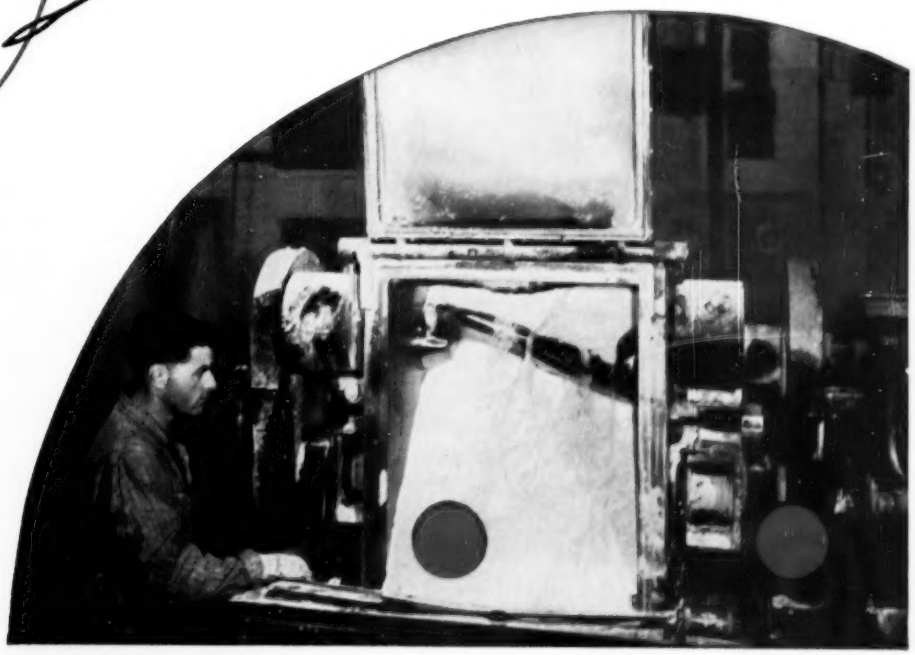
As an intermediate processor of raw materials for plastics fabricators, the Extrusion Division of Auburn Button Works in Auburn, New York, compounds and blends a wide variety of special vinyl plastic mixtures for its many customers. Thorough mixing and intensive kneading of the materials is necessary to insure a uniform blend with high tensile strength, good surface quality, retention of heat and light stability and other characteristics important in the finished extrusion. To obtain these characteristics, Auburn employs a specially designed Size 14 BAKER PERKINS JNM2 Universal Mixer with a working capacity of 50 gallons and a total capacity of 75 gallons. This machine is equipped with a trough shell of #304 stainless steel and is jacketed for 80 lbs. steam pressure. It has cast sigma blades with dispersion faces, cored for steam, and is driven by a 20 h.p., 900 rpm. motor.

BAKER PERKINS Universal Mixers are adaptable to virtually every mixing and kneading operation from very light to heavy duty, handling mixtures ranging in consistency from dry powders to stiff plastic masses. For complete information about Universal Mixers and other B-P equipment for the chemical processing industries, consult a BAKER PERKINS sales engineer or write us today.

289

BAKER PERKINS INC.

CHEMICAL MACHINERY DIVISION
SAGINAW, MICHIGAN



ONLY **CARBIDE** PRODUCES ALL THREE

methanol

ethanol

isopropanol

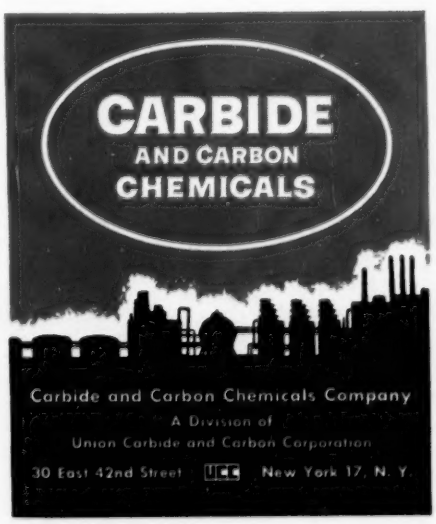
You can order any one or all three of these low-boiling alcohols from CARBIDE. They are available in various specification grades to suit your requirements. CARBIDE's 25 years of experience in producing synthetic alcohols assures you of high-purity products. Tank-car and tank-truck shipments are readily made. Prompt LCL deliveries of most grades can be made from 50 warehouses in important industrial areas.

WHENEVER YOU NEED AN ALCOHOL...

... check with CARBIDE — producers of 16 other synthetic alcohols. From this wide choice, you will be able to select the alcohol that has the combination of physical properties to solve your problem.

These alcohols are most widely used as *solvents* and *intermediates* for —

* **Surface Coatings**
* **Resins**
* **Dyestuffs**
* **Pharmaceuticals**
* **Cosmetics**

For Technical Assistance

Call the nearest CARBIDE *office for technical service — representatives are located in 21 principal cities across the nation. For additional information on these alcohols — their applications, physical and chemical properties, specifications and shipping data — ask for the new family book, "Alcohols" (F-4731). In Canada: Carbide Chemicals Sales Company, Division of Union Carbide Canada Limited, Toronto.*